

# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



## **The Tennessee Valley Project**

ELLIS KIMBLE

## **Problems of Private Recreational Land**

GEORGE S. WEHRWEIN and ROBERT F. SPILMAN

## **Measuring Locomotive Maintenance**

R. W. HARBESON

## **Reorganization of Defaulted Bond Issues**

CARRIE MAUDE JONES

## **Land-Grant Railroads and the Government**

NORRIS KENNY

## **Economics of Federal Reclamation**

WILLIAM MELCHER

## **Municipally Owned Purchasing Establishments**

PAUL JEROME RAVEN

---

---

# The public utility system of Standard Gas and Electric Company

## *includes*

The California Oregon Power Company  
Duquesne Light Company (Pittsburgh)  
Equitable Gas Company (Pittsburgh)  
Kentucky West Virginia Gas Company  
Louisville Gas and Electric Company  
Market St. Railway Company (San Francisco)  
Mountain States Power Company  
Northern States Power Company  
Oklahoma Gas and Electric Company  
Philadelphia Company  
Pittsburgh Railways Company  
San Diego Cons. Gas and Electric Company  
Southern Colorado Power Company  
Wisconsin Public Service Corporation



serving 1,662 cities and towns of twenty states . . . combined  
population 6,000,000 . . . total customers 1,569,296 . . . installed  
generating capacity 1,586,694 kilowatts . . . properties oper-  
ate under the direction of Byllesby Engineering and Manage-  
ment Corporation, the Company's wholly-owned subsidiary.

---

---

# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



## CONTENTS FOR NOVEMBER, 1933

The Tennessee Valley Project.....	ELLIS KIMBLE.....	325
Development and Taxation of Private Recreational Land.....	GEORGE S. WEHRWEIN and ROBERT F. SPILMAN.....	340
A Method of Measuring Locomotive Maintenance and Its Use in Regulation.....	R. W. HARBESON.....	352
Apartment House Bonds: Some Plans for Reorgan- izing Defaulted Issues.....	CARRIE MAUDE JONES.....	358
The Transportation of Government Property and Troops over Land-Grant Railroads.....	NORRIS KENNY.....	368
The Economics of Federal Reclamation.....	WILLIAM MELCHER.....	382
I. The Development of Commission Regulation of Public Utilities in Ohio.....	EDWIN T. HELLEBRANDT.....	395
Municipally Owned Purchasing Establishments in the United States.....	PAUL JEROME RAVER.....	410
Book Reviews.....		418
Book Notices.....		423
Index.....		427

PUBLISHED QUARTERLY BY THE INSTITUTE FOR ECONOMIC RESEARCH

Publication offices: 121 South Pinckney Street, Madison, Wis.

Editorial and General offices: The Institute for Economic Research, 337 East Chicago Ave., Chicago, Ill.

The contents of the *Journal* are indexed in the *Industrial Arts Index*.

Entered as second-class matter, January 5, 1925, at the post-office at Madison, Wis., under the Act of Congress of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized October 12, 1922. Printed in the United States of America.

**Subscription Rates:** \$5 a year; \$1.25 a copy. Remittances may be made by personal checks, drafts, post-office or express money orders, payable to the Institute for Economic Research.

Agents of the *Journal* in Great Britain, B. F. Stevens & Brown, Ltd.,

28-30 Little Russell St., British Museum, London, W. C. 1.

**Copyright:** Contents of this issue are covered by copyright, 1933, by the Institute for Economic Research. Copyright, 1933, in Great Britain.

Advertising rates furnished on application.

# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

Published by the Institute for Economic Research

RICHARD T. ELY, *Editor*

E. W. MOREHOUSE, *Associate Editor*

HELEN C. MONCHOW, *Managing Editor*

The contributors to this number include:

**Ellis Kimble**, Oklahoma Agricultural and Mechanical College.

**George S. Wehrwein**, Professor of Agricultural Economics, University of Wisconsin.

**Robert F. Spilman**, Assistant in Agricultural Economics, University of Wisconsin.

**R. W. Harbeson**, Department of Social Science, Iowa State Teachers College, Cedar Falls, Iowa.

**Carrie Maude Jones**, Librarian, National Association of Real Estate Boards.

**Norris Kenny**, Economist, United States Tariff Commission.

**William Melcher**, Professor of Economics and Business Administration, Southern College, Lakeland, Florida.

**Edwin T. Hellebrandt**, Assistant Professor of Economics, Ohio University, Athens, Ohio.

**Paul Jerome Raver**, Assistant Professor of Public Utilities, Northwestern University; Director of Rates and Research, Illinois Commerce Commission.

**Stuart Daggett**, Professor of Transportation, University of California.

**Asher Hobson**, Professor of Agricultural Economics, University of Wisconsin.

**John D. Sumner**, Assistant Professor of Economics, University of Buffalo.

**Wade De Vries**, Taxation Economist, United States Forest Service.

**Marion K. McKay**, Professor of Economics, University of Pittsburgh.

**Herbert E. Dougall**, Assistant Professor of Finance, Northwestern University.

**W. P. Mortenson**, Assistant Professor of Agricultural Economics, University of Wisconsin.

## STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912,

Of The Journal of Land and Public Utility Economics, published quarterly, at 337 E. Chicago Ave., Chicago, Ill., for October 1, 1933.  
State of Illinois, )  
County of Cook, ) ss

Before me, a notary public in and for the State and county aforesaid, personally appeared Helen C. Monchow, who, having been duly sworn according to law, deposes and says that she is the managing editor of the Journal of Land and Public Utility Economics, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—Institute for Economic Research, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.

Editor—Richard T. Ely, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.

Associate Editor—Edward W. Morehouse, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.

Managing Editor—Helen C. Monchow, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.

2. That the owner is: Institute for Economic Research, Wieboldt Hall, Northwestern University, 337 E. Chicago Ave., Chicago, Ill.; Dr. Albert Shaw, Pres., Board of Trustees, 55 Fifth Ave., New York.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Sworn to and subscribed before me this 12th day of October, 1933.

(Seal.) JEAN GRIEFEN (My commission expires, May 7, 1936.)

HELEN C. MONCHOW, *Managing Editor*



# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



VOLUME IX  
February, 1933, to November, 1933  
*Inclusive*

PUBLISHED BY  
THE INSTITUTE FOR ECONOMIC RESEARCH  
WIEBOLDT HALL, NORTHWESTERN UNIVERSITY  
337 EAST CHICAGO AVENUE  
CHICAGO, ILLINOIS

THE JOURNAL OF  
AND PUBLIC UTILITY  
ECONOMICS



T  
In  
Fe  
N  
TH  
N  
N  
To

# We Recommend---

*The following loose leaf law Services, always up to date, as the complete and continuing answers to the vital problems presented by the Administration's Relief and Recovery Program.*

## Industrial Control Laws

**FEDERAL TRADE REGULATION SERVICE**—A three-volume Service reporting all industrial control and recovery legislation such as the National Industrial Recovery Act and pertinent provisions of the Farm Relief (Agricultural Adjustment) Act, in addition to full reports on the basic Clayton and Sherman Anti-trust Acts and the Trade Commission Act and related laws on the subject of federal regulation of trade. The Service, now in its eighteenth year, and complete from the beginning to date, with continuing reports to May 1, 1934, is priced at \$35; to May 1, 1935—\$60, payable \$25 on installation and \$35 May 1, 1934.

## Federal Securities Act

**STOCKS AND BONDS LAW SERVICE**—The only complete reporter on Blue Sky law (including all the state laws, regulations, rulings and decisions, which will constitute the "Experience Table" for the new Federal Act), excellently arranged, with new divisions for coverage of the new Federal Securities Act with all forms, rulings and regulations to date. In three volumes. Price, with continuing Service for period ending January 1, 1935—\$60, payable \$30 on installation and \$30 January 1, 1934. Or, Federal volume only at \$30, payable \$10 on installation and \$20 January 1, 1934.

## New Banking Laws

**FEDERAL RESERVE AND BANK LAW SERVICE**—A complete reporter on the Federal Reserve System since the beginning of the Federal Reserve Board and on all federal banking laws including deposit insurance, National Bank Act, Banking Act of 1933, farm relief, farm loans, home loans, etc. Priced at \$35 for 12 months and \$56 for 24 months.

## The Inflation Law

**INFLATION LAW SERVICE**—A one-volume Service devoted to exposition of the measures designed to increase commodity prices and to bring about the credit adjustment represented by the Administration's "New Deal" concept. Specially adapted for use in keeping currently informed on the revolutionary changes in the relation of the Federal Government to business. The Service offers the only organized reporting system on all phases of the new "Inflation" Act and as a matter of general information also reports all new laws entering into the Roosevelt program. The special introductory price of \$20 includes current reports to July 1, 1934.

## New Federal Taxes

**STANDARD FEDERAL TAX SERVICE**—A four-volume Service embracing an unequalled compilation of past Federal tax decisions and rulings, with a super-index and many helpful features by way of finding lists and current rewrite bulletins. Full texts of effective Federal tax provisions and Regulations. New tax provisions such as contained in the Emergency Farm Relief Act, Electrical Energy Tax, etc., Act, and Industrial Control Act, are incorporated in the Service, with all appropriate annotations, indexes, and explanations. Price for entire year 1934—\$70. Or, the \$20 Rewrite Federal Tax Service, for those who are not ready for the unabridged Service.

## New Bankruptcy Law

**BANKRUPTCY LAW SERVICE**—A thorough exposition of the federal bankruptcy law, new and old, reporting currently on every development, including rules, forms, decisions, general orders, state exemptions, etc. Price, including current reporting service for the next twelve months, \$30; for 24 months, \$48.

To Commerce Clearing House, Inc., Loose Leaf Service Division of The Corporation Trust Company, 205 W. Monroe St., Chicago.

Without obligation of any kind, send full information about the Services checked above.

Name.....

J-E

Address.....

Attention.....

City.....



---

# "WHERE TO, PLEASE?"



SCARCELY a day passes—sometimes scarcely an hour in the day—that you do not go visiting by telephone. It is truly the magic carpet that transports you, quickly and easily, to places you would like to be and people you would like to see.

Who can estimate the value of the telephone in the daily lives of millions of men and women . . . in time and money saved, in increased efficiency, in security and priceless help in time of need!

Contact, communication, swift interchange of ideas—these benefits the modern world offers you. The

telephone is one of the chief instruments by which you can seize them. With it at your elbow you are ready for what may come—for opportunity, for emergency, for the brief word that may open a fresh chapter in your life.

Within the next twenty-four hours, sixty million telephone calls will be made over Bell System wires—each a separate, individual transaction, complete in itself. Yet your own calls will go through as quickly and efficiently as if the entire system had been built especially for you.



AMERICAN TELEPHONE AND TELEGRAPH COMPANY



# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

NOVEMBER  
1933



VOLUME IX  
NUMBER 4

## The Tennessee Valley Project

By ELLIS KIMBLE

THE Tennessee River development is one among several projects through which President Roosevelt hopes to terminate the present destructive depression. This project has greater significance, however, as it has as its purpose the economic and social development of a great region under the guidance of the Federal Government.

The key projects of this program are the development of the great potential power and other natural resources of this region. In the special session just ended, Congress enacted a bill setting up the Tennessee Valley Authority, a corporation whose function is to control, construct, and operate improvements on the Tennessee River and its tributaries which will greatly improve navigation on the River, bring floods under control, and promote the production of electric power. Moreover, it is hoped that through improved navigation and abundant cheap power industrial growth will be stimulated.

The Authority is also authorized to use some of the power produced in making materials for commercial fertilizers which are so badly needed on southern and eastern farms. This project also calls for reforestation of all lands in the valley suitable for such purpose and for the determination of the proper use of marginal lands.

### *History of Legislation Affecting the Development of this Region<sup>1</sup>*

The importance of this basin and the great benefits to be derived from improvements on its rivers have long been recognized. The first official attempt to improve the Tennessee River was at the Muscle Shoals in 1824 when President James Monroe in his annual report to Congress submitted the report of his Secretary of War, John C. Calhoun, recommending a survey of Muscle Shoals as one of the three great works which he regarded as most important for improvement of transportation facilities in the United States. As a result, a

<sup>1</sup> W. G. Waldo, technologist for the Muscle Shoals Commission, Appendix to the *Report of the Muscle*

Shoals Commission in House hearings before the Committee on Military Affairs, 69th Congress, second session.

preliminary survey was ordered in 1827 and the resultant report in 1828 recommended lateral canals around the Shoals. After spending \$644,000 on the project, it was discovered that the locks ordered were those needed in the middle section only. Congress was, therefore, asked for \$750,000 to complete the project. This request Congress refused. However, an appropriation of \$57,000 was allowed to complete the middle section. Of course, without further development what had already been done was useless and since no provision was made for maintenance, the whole project fell into ruin.

In 1872 the United States army engineers recommended enlargement and repair of this old canal but later this recommendation was dropped and one asking for improvements of the open channel was adopted. This later recommendation was accepted by Congress and the improvements were completed in 1900 at a cost of over \$3,000,000.

Between 1905 and 1912 several examinations and reports were made from the standpoint of joint navigation and power developments. In 1915 an appropriation of \$150,000 was authorized by Congress to be used by the Board of Engineers on Rivers and Harbors to complete surveys of Muscle Shoals, and their report was made in 1916.

In the National Defense Act of 1916 Congress granted \$20,000,000 for the construction and operation of a nitrate plant. In 1917, \$500,000 of this was used to acquire lands for the construction of Wilson Dam at Muscle Shoals and in 1918 President Wilson authorized the use of \$12,000,000 for the construction of this dam. Work was brought to a halt in 1921 because of lack of funds, with the dam about 35% completed. In 1921, the sum of \$10,000,000 was asked for in a Senate bill

for completion of the dam but this was rejected because the project was considered to be without merit.

In the years between 1917 and 1920 two nitrate plants were built at Muscle Shoals at a cost of about \$80,000,000.

In 1922, \$7,500,000 was appropriated for continuing work on Wilson Dam. This work was completed in 1925 after a total expenditure of \$45,000,000.

A long conflict as to the agent for the operation of the power and nitrogen fixation plants at this dam was begun in 1921 when bids were asked for from private companies. Although bills were introduced in every succeeding Congress, action was not had until the passage of the Act creating the Tennessee Valley Authority in 1933.

In 1922 Congress authorized a survey of the whole Tennessee basin and also authorized an expenditure of \$200,000 for the purpose. Again in 1925 and 1926 acts were passed which increased the scope of the survey and authorized increases in expenditure up to \$790,000. In 1927 a further expenditure of \$300,000 was authorized. A total of \$1,090,000 has thus been authorized and spent in surveys of this basin.

The data collected by these surveys, says the engineer in charge of the complete report, are sufficient to permit formulation of general plans for development of the rivers on which these proposed projects are located but not sufficiently definite with reference to detail investigation of dam sites to permit exact determination and detail layouts of the various projects. The cost of detail core-borings for the exact location of dams is very great; about \$180,000 was spent in investigation of the dam site at Cove Creek. A great deal more, therefore, will have to be spent in such surveys before completion of the ultimate program of improvements.

By the Act of 1933, the Tennessee Valley Authority is authorized to issue bonds to the amount of \$50,000,000 for development purposes. The Secretary of War or Secretary of the Interior is authorized to build or to have built a dam at the Cove Creek site and turn it over to the Authority for operation. The Authority is authorized to complete Wilson Dam at Muscle Shoals and to equip and operate the fertilizer plants and power plants at this site, whenever the President deems it advisable.

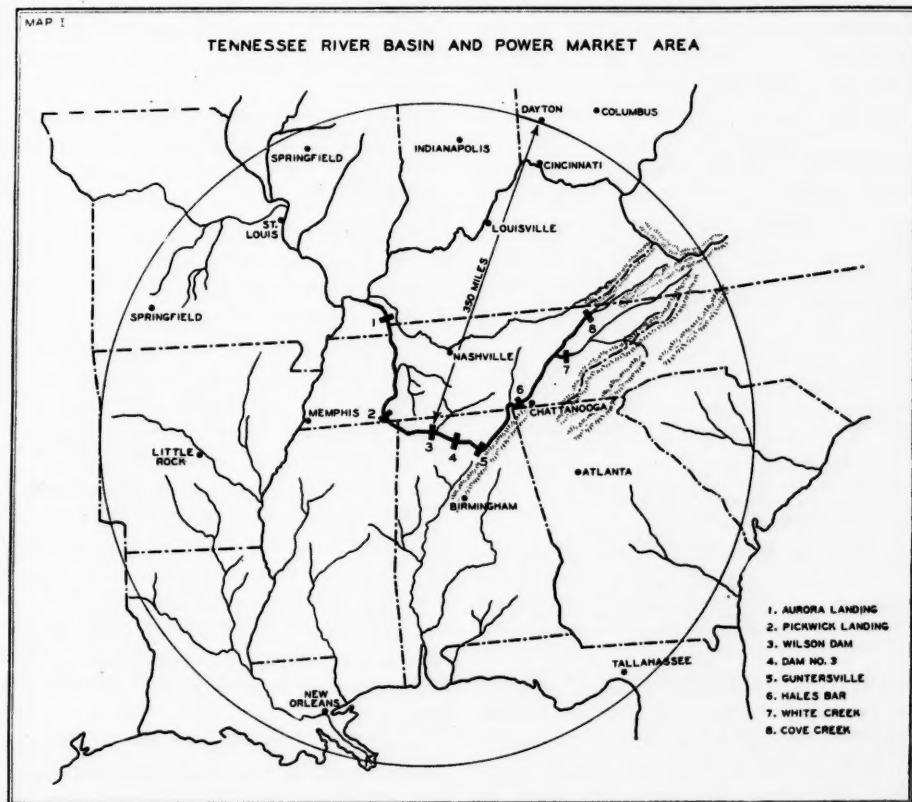
### *Description of the Basin<sup>2</sup>*

In the vicinity of Knoxville, Tennessee, two smaller rivers, the Holston and the French Broad, unite to form the

Tennessee River. From Knoxville, the Tennessee River flows generally southwest, enters Alabama, and flows across that State in a westerly direction, then turns north and west, again crosses Tennessee and finally flows across Kentucky where it empties into the Ohio River at Paducah, Kentucky (Map I).

The main stem of the Tennessee River is 652 miles long. Its drainage basin comprises 40,600 square miles within which dwells a population of two million people. There is a fall of 500 feet in elevation between its source and its mouth, 100 feet coming in a stretch of

<sup>2</sup> Report of the District Engineer to the Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, part 1.



17 miles at Muscle Shoals. There is no abrupt fall at any point as at Niagara, but a series of rapids covering a distance of 37 miles with a total fall of 134 feet. There is great variation of stream flow, the minimum recorded flow (4,300 second feet) occurred in 1925 and the maximum recorded (481,000 second feet) occurred in 1898. The basin has an average rainfall of 51.2 inches annually, part of it receiving the greatest annual rainfall in the United States with the exception of a small area in Oregon and Washington. Much of this precipitation comes in the months of March and April, causing destructive floods, while in the autumn months the flow is very low.

The Tennessee basin is rich in natural resources, which are to a large degree undeveloped. The nature and extent of these resources are indicated in Tables I and II.

TABLE I. AGRICULTURAL PRODUCTS, 1924.\*

Product	Amount
Corn.....	47,997,000 bushels
Wheat.....	2,187,000 bushels
Oats.....	577,000 bushels
Peanuts.....	837,000 bushels
Hay.....	963,000 tons
Cotton.....	475,000 bales
Tobacco.....	38,635,000 pounds
White potatoes.....	2,300,000 bushels
Sweet potatoes.....	1,948,000 bushels
All cattle.....	844,000 head
Beef cattle.....	304,000 head
Hogs.....	727,000 head
Total value of livestock products.....	\$ 94,598,000
Total value of farm crops.....	\$151,654,000
Total value of all farm products.....	\$256,252,000
Approximate weight.....	2,888,000 tons

\*Report of District Engineer on Surveys on the Tennessee River to the Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1, Appendix G, Table 15.

The District Engineer found from a study of agriculture in the basin that only cotton and tobacco were produced in sufficient quantities to supply more than the local demand. In fact, he

found that it was necessary to ship into the area large quantities of other products in order to fill the local need. However, there is a wide range of products as indicated by Table I.

TABLE II. MINERALS, LUMBER, AND MANUFACTURED GOODS.\*

Product	Production—1926 (Tons)	Reserves Available (Tons)
Asphalt rock.....	23,600	17,000,000
Barite.....	47,000	†
Beauxite.....	500	700,000
Clay.....	63,000	†
Coal.....	11,991,000	1,835,000,000
Iron ore.....	166,000	169,047,000
Limestone.....	2,152,000	†
Manganese.....	2,000	55,000
Marble.....	72,000	\$
Phosphate rock.....	460,000	92,400,000
Sand and gravel.....	1,643,000	†
Slate.....	27,000	†
Zinc ore.....	822,000	45,000,000
Lumber.....	1,190,000	\$
Manufactured goods.....	3,300,000	.....

\*Report of the District Engineer on Surveys on the Tennessee River to the Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1. Derived from Tables 16, 17, 18, Appendix G.

†Unknown.

‡Inexhaustible.

§Large.

Although this area is remarkably rich in the variety of mineral resources, under present conditions they either exist in insufficient quantities for profitable working or the cost of extraction is too great as compared with other locations and supplies. But when the more available supplies are exhausted or conditions more favorable to production in the Tennessee area are consummated, these resources will prove very valuable to the people of the region. However, at present, phosphate rock, iron ore, coal, copper, and marble are being profitably produced in large quantities. Coal deposits comprise the greatest source of wealth in the Tennessee basin.

The total tonnage produced in the basin in 1924 was approximately 44,135,000 tons, of which 7% was agricul-



tural products, 83% minerals, 3% forest products, and 7% manufactured goods. The potential mineral resources and the smallness of the percentage of manufactured goods as compared to other products suggest the possibility of greatly increasing the manufacturing industries if cheap transportation and power are made available.

#### *Floods and the Need of Flood Protection or Control<sup>3</sup>*

The Tennessee Valley is subjected to inundation by floods almost every year and quite frequently these overflows cause great damage. The most severe floods on record occurred in 1867 and 1898. The loss from these two destructive floods is unknown but a lesser flood in 1926 is estimated to have caused damage amounting to \$2,650,000. The average annual loss to the Valley from floods is estimated at \$1,780,000, including the excessive damage caused by a "five-hundred-year flood"<sup>4</sup> which, it is estimated, will cause a loss of \$14,350,000.

The area around Chattanooga, Tennessee, bears the brunt of these floods, with an estimated annual loss of \$650,000. This city has planned improvements to protect against floods for this area but the cost is excessive, estimated at \$12,000,000. The proposed improvements would not be useful for power production from which the city might recover part of the cost of construction; the whole cost would have to be charged to flood control. Interest on this amount and charges for maintenance would be a larger sum than the annual loss from floods. It seems desirable, therefore,

that control of floods at Chattanooga be merged with a plan of combined flood control and power production for the whole river system.

These estimates of loss do not include any indirect flood damages, such as losses from interrupted traffic and business, unsanitary conditions and spread of disease, and depreciation of lands caused by overflow. These indirect losses are great and their elimination by improvements which would bring floods under control would be a further great benefit to the Tennessee basin.

It has been thought by some that flood control on the Tennessee River would have considerable effect on the floods of the Mississippi River. Naturally, control of floods on the Tennessee River would have some effect on floods on the Mississippi but the Mississippi River Commission thinks that such effect would be slight.<sup>5</sup> Improvements for flood control on the Tennessee must be justified by the need for protection from floods in the Tennessee basin alone.

#### *Navigation and Commercial Needs for Navigation in the Tennessee Valley<sup>6</sup>*

The Tennessee River is at present navigable in some reaches but according to surveys made by United States Army engineers can be made navigable in its entire length by proper improvements. Many miles of navigable waterway can be provided on its tributaries as well. The Tennessee River has been under improvement by the United States Government for some time, most of the work done providing for open channel navigation. There are three sections

<sup>3</sup> Report of the District Engineer to the Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1.

<sup>4</sup> It is estimated by flood engineers that at least once in 500 years there will occur on any stream a flood of gigantic proportions which will cause excessive damage.

<sup>5</sup> Report of the Mississippi River Commission to the

Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1.

<sup>6</sup> Summary of Report of District Engineer on Tennessee River Surveys to the Chief of Engineers, U. S. Army; summary made by the Board of Engineers on Rivers and Harbors in their report to the Chief of Engineers, House Document 328, 71st Congress, 2nd Session, pt. 1.

of slack water, however, two of them, Hales Bar and Widows Bar, provided by private enterprises and the other provided by the government dam at Muscle Shoals. There are also three short sections of lateral canals. Several improvement projects are under way but are incomplete as yet. Total expenditures on these improvements amount to \$23,400,000 and \$15,000,000 more will be required to complete them. When completed, the present projects will not provide a satisfactory waterway as sections will still remain, especially at Muscle Shoals, where at low water the controlling depth is only a little over one foot. By proper developments, which are shown by government surveys to be feasible, a nine-foot waterway can be provided from the mouth of the River to Knoxville, Tennessee.

The traffic now using the River in its unsatisfactory state and the future possibilities, if a real waterway were provided, have also been surveyed by the Government. In 1926 the traffic on the Tennessee River amounted to 1,982,252 tons with an average haul of 19.6 miles, resulting in a total ton-mileage of 39,020,096. Of this total, 48% was forest products, 15% sand and gravel, 23% iron ore, 7% farm products, and 7% miscellaneous.

The cost to shippers for handling this freight on the River was \$842,777, compared with an estimated cost of \$2,720,481 for rail shipment at current rail rates. The result was a saving to shippers of \$1,877,704 through use of the waterway.

In 1926 the railroads carried 9,559,000 tons of traffic which could have been moved by water if a nine-foot waterway had been available. It is estimated that a saving of \$12,231,000 could have been made in the transportation costs on this traffic. Considering that 40%

of this traffic would have gone by rail despite the cheapness of water transportation, the saving would still have been \$7,300,000. Assuming a normal increase in traffic, it is estimated that by 1950 the traffic using the waterway will be 17,800,000 tons, effecting an annual saving to shippers of \$22,800,000. However, the Division Engineer and the Board of Engineers for Rivers and Harbors of the Army stated that they thought these figures of the District Engineer were excessively optimistic. There is, thus, considerable difference in the opinions of those competent to judge such matters but, nevertheless, it is true, no doubt, that a great increase in water traffic would follow an improved waterway and increased industrial activity and that large savings can be effected thereby. The estimated savings are substantially in excess of the estimated carrying charges of navigation improvements, if the entire cost of dams be charged to power production instead of to navigation, the latter bearing only the costs of locks at the dams.

#### *Power, Present and Future<sup>7</sup>*

The Tennessee River and its tributaries possess the greatest undeveloped power resources in the southeastern quarter of the United States. There is a difference of 500 feet in elevation between the source and the mouth of the Tennessee River alone, while the tributaries offer further great changes in elevation; at the Cove Creek site on the Clinch River a dam 225 feet in height is projected. Only a small portion of the potential power of this river system has yet been developed, the largest development being that of Wilson Dam at Muscle Shoals.

<sup>7</sup> Report of the District Engineer on Surveys on the Tennessee River to the Chief of Engineers, House Document 328, 71st Congress, 2nd Session, pt. 1.

The present installed capacity of all hydro-electric plants of 370 or more kilowatts, including the plants at Muscle Shoals, is 413,470 kws. for the whole basin. The installed capacity of the government development at Muscle Shoals is 184,000 kws.,<sup>8</sup> which according to engineers' estimates can be increased to 340,000 kws. firm power on 50% load factor, by installation of auxiliary steam plants. Total installed capacity for the basin, including 23 hydro plants of 370 kws. and over and the additional installation contemplated at Muscle Shoals is 673,470 kws. When installations under construction or planned for the immediate future are completed, the total installed capacity will be over 1,000,000 kws. The total steam electric installations amount to 179,880 kws. The total output in 1927 was 1,182,600,000 kw. hrs.

Investigations by the District Engineer of the possibilities of hydro-electric power development in the basin show that a total of about 3,000,000 kws. can be developed. He estimated that the annual demand in the Tennessee Valley for 1950 will be 5,900,000,000 kw. hrs. and that the total annual possible production at projects proposed for the basin will be 25,000,000,000 kw. hrs., half of which can be produced on the main stem of the River. It is evident that the Tennessee basin cannot use all the power which this system can produce and that a market for the surplus will have to be sought within the range of economic transmission and hence within a radius probably no more than 350 miles from the plants. Increased industrial activity within the basin is expected to expand the local market. Then the United States Government expects to use a considerable portion

of the energy produced here in the production of fertilizer materials. Within the market area adjacent to this development it is expected that there will have developed, by 1950, a need sufficient to absorb all surplus energy that can be developed by the project.

A circle drawn around the territory within a 350-mile radius of Wilson Dam at Muscle Shoals would include Dayton, Ohio, Indianapolis, Ind., Springfield, Ill., Springfield, Mo., Alexandria and New Orleans, La., and Tallahassee, Fla. The eastern half of the circle can very well take care of itself but the western half needs as its future source of supply the water powers of the Tennessee and Cumberland basins of which the Tennessee is by far the more important (Map I).

*Cost of Production.* Estimates of the District Engineer, United States Army, in charge of the survey, showing costs of production of electric energy by the combined power of the ultimate development, and the estimated costs based upon the plants at Muscle Shoals are found in the following text and tables.

TABLE III. THE COST OF PRODUCING POWER, ULTIMATE PROJECT.\*

	Mills per Kw. Hr.
Cost of producing hydro power, natural to base.....	2.49
Cost of storage output and regulation..	6.09
Total cost of hydro power production..	4.15
Cost of auxiliary steam power.....	6.11
Total cost of hydro-steam power...	4.33

\*Summary of table of costs, by District Engineer, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1.

In making this cost analysis, it has been assumed that the costs chargeable to power include all costs except those of locks, barge lifts, and channel work required solely for navigation. Cost

Tennessee Valley Authority has issued information in which they estimate capacity as 195,000 kws. hydro and 60,000 kws. steam power.

<sup>8</sup> The District Engineer derived these figures from data furnished by the U. S. Geological Survey. The

of storage is charged to power, as power is benefited thereby. Costs are also based on the operation of plants on a 50% load factor.

According to the Chief of Army Engineers, this cost of producing power (4.33 mills per kw. hr.) is not remarkably low for a large hydro-electric power development, but it "is considered sufficiently low to constitute an economically feasible and desirable project," wherever the demand for power is such that a market is present which can absorb such large quantities.<sup>9</sup>

However, costs at particular projects alone, as at Muscle Shoals, may be much lower than those for the project as a whole. Estimated costs of producing power at Wilson Dam and the items on which these costs are based are as follows:<sup>10</sup>

Interest on investment at.....	4.00%
Depreciation and amortization of hydraulic and electrical equipment.....	3.03%
Depreciation and amortization of dam, reservoirs, and general construction.....	0.48%
Depreciation and amortization of shops and camp buildings.....	5.00%

Applying the above method to the property at Muscle Shoals the District Engineer found the cost of producing hydro power to be 1.352 mills per kw. hr., using an installation of 340,000 kilowatts.

The cost of producing auxiliary steam power at Muscle Shoals was based upon the following:

Interest on investment.....	5.50%
Depreciation and amortization.....	2.56%
Taxes and insurance.....	1.80%

Total fixed charges.....9.86%

Operating costs of \$25 per kilowatt year of steam output.

By applying these percentages and costs, the District Engineer found the unit cost of steam auxiliary power at the switchboard to be 7.215 mills per

<sup>9</sup> Report of Chief of Engineers to the Secretary of War, 1930, House Document 328, 71st Congress, 2nd Session, pt. 1.

kw. hr. Combining the above hydro and steam auxiliary costs, he found the composite prime power cost to be 3.161 mills per kw. hr.

Transmission costs used in estimates are shown in Table IV.

TABLE IV. TRANSMISSION COSTS

Distance Transmitted	Mills per Kw. Hr.
100 miles.....	0.640
200 miles.....	0.962
250 miles.....	1.118
300 miles.....	1.274
350 miles.....	1.425

Adding the cost of producing hydro power to the above transmission costs gives the results in Table V.

TABLE V. COST OF HYDRO POWER BASED UPON WILSON DAM AND TRANSMITTED VARIOUS DISTANCES

Distance Transmitted	Mills per Kw. Hr.
At switchboard.....	1.352
100 miles.....	1.992
200 miles.....	2.314
250 miles.....	2.470
300 miles.....	2.626
350 miles.....	2.777

The district engineer's estimate of the cost of composite power to companies buying hydro power from the Muscle Shoals plants and furnishing their own steam auxiliary power is shown in Table VI.

These costs, according to the District Engineer, are lower than any commercial company in the Southeast can show and are thus a basis for very attractive rates. When it is seen that the large cities of St. Louis, New Orleans, Memphis, Nashville, and others are well within marketing distance, the sale of power from this region appears very feasible if these costs can actually be achieved.

<sup>10</sup> Report of the District Engineer on Surveys of Tennessee River to Chief of Engineers, U. S. Army, House Document 328, 71st Congress, 2nd Session, pt. 1, Appendix G, part C.



TABLE VI. COMPOSITE COST OF POWER.\*

Distance Transmitted	Cost of Hydro Power Delivered	Cost of Steam Auxiliary Power	Total Cost	Number of Kw. Years	Cost per Kw. Hr. (Mills)
0 miles.....	\$2,729,363	\$6,498,731	\$9,228,094	333,000	3.161
100 miles.....	4,022,497	6,498,731	10,521,228	333,000	3.618
200 miles.....	4,673,102	6,498,731	11,171,833	333,000	3.825
250 miles.....	4,988,304	6,498,731	11,487,035	333,000	3.940
300 miles.....	5,303,506	6,498,731	11,802,237	333,000	4.055
350 miles.....	5,608,600	6,498,731	12,107,331	333,000	4.165

\*With Wilson Dam installed to 340,000 kws. and hydro power transmitted different distances and sold to companies furnishing their own steam auxiliary power (without stream flow regulation).

The private power interests and those who desire to keep the government out of business have been instrumental, heretofore, in blocking public operation. They have continually contended that a government bureau could not operate as efficiently as private businesses with the incentive of individual profits. They have further contended that government in business is unfair competition and contrary to American practice; that government should confine its activity to controlling business practices, leaving to private interests the actual operation of business according to American traditions.

However, it is thought by many that there is need for establishing standards of costs of construction and operation for the production and distribution of electric light and power. Government production and distribution in a large undertaking, such as that at Muscle Shoals, might be instrumental in establishing some comparative standards for private operation in these fields.<sup>11</sup> Competent engineers have said that there are plenty of cases in which new plants could be constructed at half the amount of the valuations now allowed on existing plants.

It is demonstrable that many companies are much overcapitalized under

present conditions and that the public is expected to pay returns on much water in these valuations. Various public developments in different parts of this country and in Canada and investigations by competent engineers seem to indicate that the public is paying too much for electric service in this country, largely because of great overcapitalization of private companies. Overcapitalization was brought about in many instances by private companies paying exorbitant prices in the reckless competitive race for monopoly control of large areas. Later these prices found their way into valuations upon which a return is expected. The Act of 1933, by permitting the United States Government to enter the fields of production and distribution, should make possible the determination of the truth of these contentions and be instrumental in setting up some standards for these utilities.

#### Fertilizer Production

One of the principal purposes of the Tennessee basin development is the production of nitrogen to be used in the formation of commercial fertilizers. The farm lands of the South and East have long since been robbed of their natural fertility by a system of predatory

<sup>11</sup> The Tennessee Valley Authority has recently released rates for electricity for domestic use in the

Valley which are from 20 to 60% lower than private plant rates elsewhere.

farming, and it is now necessary to use great quantities of commercial fertilizers if good results are to be obtained. The cotton and tobacco producers of the South receive the smallest incomes of any group of farmers in the United States. The lands of the Middle West are also approaching a condition of depleted fertility. In the past we have depended upon imports from other countries for these fertilizer supplies, especially nitrates from Chile and potash from Germany.

Then again, nitrogen is necessary for the production of explosives. We found during the World War that we were greatly handicapped by the lack of a home supply of this necessary element. Since processes of nitrogen fixation, i. e., taking nitrogen from the air, had been discovered, the Government determined to set up plants for this purpose. Plants were constructed at Muscle Shoals to furnish these war supplies and with the further intent of using these plants for manufacturing fertilizer materials in peace times. However, the controversy over the question of the proper agency to operate these plants in peace time has been a major factor in holding them idle and useless until the present time.

It has been questioned whether nitrogen can be fixed more cheaply by government plants at Muscle Shoals than it is being produced by private companies and thus whether savings can be effected in the farmers' fertilizer bills. The question has also arisen as to whether a newer process of nitrogen fixation has not been found, which makes obsolete the plants at Muscle Shoals and which makes unnecessary the use of large amounts of power in obtaining this important material.

<sup>12</sup> *Majority Report* of Muscle Shoals Commission, House Hearings on Muscle Shoals before the Committee

Because of the controversy as to the feasibility of making fertilizer materials cheaply at these government plants and because such divergent views had been expressed concerning the expected benefit to agriculture, the Muscle Shoals Commission determined to find, beyond reasonable doubt, what the cost of manufacture of such concentrated materials would be at the Shoals plants and what the average delivered price of such materials produced at these plants would be, as compared with the average price the farmers were then paying for fertilizers.

After a thorough investigation the Commission reported in 1927.<sup>12</sup> This investigation showed that the average saving to farmers on the delivered price of mixed commercial fertilizers would be 43% of the prices they were then paying for fertilizers of equal plant-food value.

Table VII shows the average of their findings from a study of conditions in 23 states.

TABLE VII. ESTIMATED SAVINGS TO FARMERS BY USE OF COMMERCIAL FERTILIZER FROM MUSCLE SHOALS PLANTS.

Actual average cost per ton of average mixed fertilizer then used in each state.....	\$36.78
Total cost to farmer f. o. b. central point in each state of concentrated mixed fertilizer made at Muscle Shoals and equal to one ton of the average mixed fertilizer then used.....	20.74
Saving to farmers by use of concentrated fertilizer from Muscle Shoals.....	16.03

This seems at least persuasive evidence of the possibilities of the use of the Muscle Shoals plants in the production of fertilizer materials for which there is such great need.

There are three processes by which nitrogen fixation may be accomplished:

on Military Affairs, 69th Congress, 2nd Session, H. R. 16396 and H. R. 16614. Concurred in by Minority.

the arc process, the cyanamide process, and the synthetic process.<sup>13</sup> The controversy has centered around the latter two. The plants at the Shoals are built for the cyanamide process. It has been widely advertised in the United States that this process is obsolete and that the synthetic process has taken its place. According to the investigation made by the Muscle Shoals Commission, this is not true. The two processes were found to be adapted to different conditions. Where water power is cheap and plentiful, the cyanamide process is favored while the synthetic process is adapted to a condition of cheap coal and a scarcity of water power. This investigation shows that the synthetic process has made its greatest progress in countries of Europe where there is a great lack of water power and that the cyanamide process is expanding in preference to the synthetic process where cheap power is available.

Two other compounds are essential in making commercial fertilizers: phosphates and potash. Conditions at Muscle Shoals are favorable for the production of phosphoric acid for this purpose but potash can be obtained cheaper from Germany and France.

There are two methods of making

<sup>13</sup> In the arc process air is confined in small chambers and subjected to the action of many powerful arc lights. This produces nitrous oxide which is dissolved in water to form weak nitric acid. This is then concentrated and when used for fertilizer is neutralized with lime to form calcium nitrate, a fertilizer material which contains 13% nitrogen. The use of the process is not suited to conditions in this country but is confined to the Scandinavian countries where power can be produced for five to six dollars per horse power per year. It requires 63,500 kw. hrs. of electric energy to fix a ton of nitrogen.

In the cyanamide process, lime and coke are crushed to egg-sized lumps, mixed, and charged into an open-top electric furnace. These two materials fuse at 6000° and the product is calcium carbide. This is cooled, ground, and heated to 2200° in an electric oven in an atmosphere of nitrogen. The resulting compound is calcium cyanamide. This readily gives up its nitro-

phosphoric acid. The first is to extract the acid from phosphate rock by the use of sulphuric acid. The second method is to heat phosphate rock with sand and coke in an electric furnace. This drives off the phosphoric acid as a vapor which precipitates in the form of liquid phosphoric acid. This is the process adaptable to conditions at Muscle Shoals and is the cheaper process because plentiful cheap power is present and much phosphate rock is located in the Tennessee basin about 50 miles from Wilson Dam.

It seems probable that the Muscle Shoals development and, therefore, development of the Tennessee basin power projects may be very beneficial to agriculture and offer possibilities of saving farmers a large sum annually if fertilizers can be furnished as cheaply as estimated.

#### *Reforestation, Regulation of Marginal Lands, and Social Development*

These are uncharted fields and their elaboration rests largely with the President and those whom he places in charge of the development. The social program is an experiment new to the United States Government and will be interesting to watch. It is an experiment in a planned society with respect to economic and social development of a great region.

gen in the form of ammonia when treated with steam in the presence of an alkali, and the ammonia can be used to produce fertilizer compounds of high concentration. The plant at Muscle Shoals using this process has a capacity of 220,000 tons per year, and requires about 12,000 to 13,000 kw. hrs. of electricity per ton of nitrogen fixed.

The synthetic process produces nitrogen in the form of ammonia by direct synthesis of its constituent gases, nitrogen and hydrogen. This process would seem simple but obtaining the gases in pure form is difficult. One method of obtaining them is the alternate passing of air and steam through incandescent coke. The product, however, is not very pure and must be further purified. The product of the synthetic process is purer than necessary for fertilizers; moreover, its cost is too high, being in 1927, 15 to 18 cents per pound, while for fertilizers it should not have then cost over five to six cents per pound.

Probably the outstanding factor from the social point of view is the tendency of the project to decentralize industry, bringing industries within the reach of those in less densely populated districts where the worker may combine industrial employment with agricultural pursuits and allow him and his family to avoid the blighting effects of city slums. Many believe that the day of centralization of industry is on the wane and that one of the chief factors in bringing about decentralization will be the widespread development of natural power resources such as those in the Tennessee Valley. In the Tennessee Valley project the Federal Government has taken a step in this direction with social development of a region as a major objective.

*Comprehensive Plan for Ultimate Development of the Tennessee Basin*<sup>14</sup>

The ultimate plan for the Tennessee River and its tributaries, so as to achieve the maximum benefits of flood control, the best plan for navigation, and the development of the power possibilities of the rivers in this region, includes the construction of about 200 dams with requisite locks for navigation purposes, the canalization of about 1,900 miles of waterway, construction of about 15,760,000 acre feet of reservoir space with surcharge pondage of five feet on projects on the tributaries and of ten feet on the dams on the main stream.<sup>15</sup> It is expected that this plan will provide a nine-foot waterway on the 652 miles of the Tennessee River and 1,257 miles of both nine- and six-foot waterway on the tributaries. The development of the

main stream involves the construction of seven high dams with locks 60 ft. by 300 ft. with a total lift of 500 ft. The total cost of construction of these projects on the main stream is estimated at \$248,925,700 of which \$18,900,820 is chargeable to navigation alone, \$95,285,550 to power and navigation together, and \$134,739,330 to construction of power houses and installation of equipment. The total lift of dams on the tributaries will be 4,622 feet. It is estimated that a total of 3,000,000 kws. of continuous power can be developed at these dams and that the total cost of the whole comprehensive project will be about \$1,200,000,000.

This, of course, is not the first project for a regional development of natural resources attempted by the United States Government. Projects providing for irrigation of large areas along our western rivers have been carried out in several instances. The most noteworthy previous project is Boulder Dam on the Colorado River which is now under construction and which is connected with the construction of the All-American Canal, which will carry the waters of the Colorado into the Imperial Valley for irrigation purposes.

This project and that to be carried out in the Tennessee River basin, although in many respects similar, differ in several important particulars. They have to do with different climatic and physiographical conditions. In the first place, flood control is an important primary need in each of the projects, the variation between the lowest and the highest flowage being in the ratio of approximately 1 to 10 in each case.

<sup>14</sup> Summarized from *Report of District Engineer on Surveys on the Tennessee River to the Chief of Engineers*, U. S. Army, House Document 328, 71st Congress, 2nd Session, part 1.

<sup>15</sup> Surcharge pondage refers to extra storage space provided for over and above the normal pool eleva-

tion of a dam. It is designed to compensate for loss of natural storage space of stream channel which is taken up by the reservoir above the dams and to enable a holding back of flood waters for a more regular flow. "Acre feet" refers to the amount of water that will cover one acre one foot deep with water.



In the second place, the damming up of these flood waters provides water power for the production of large quantities of electric energy. The Boulder Dam will provide a reservoir 115 miles in length which will store 30,500,000 acre feet of water, while the dams in the Tennessee project will provide reservoirs for 15,750,000 acre feet. The flow of water over the dams, it is estimated, will provide for an installed capacity of 800,000 kws. at Boulder Dam with an annual production of 4,240,000,000 kw. hrs. of power, while the installed capacity of the Tennessee projects is estimated at 3,000,000 kws. and the annual production at 25,000,000,000 kw. hrs. of power.

In order to store up these waters only one dam 770 feet in height is necessary on the Colorado River while on the Tennessee project some 200 dams are projected. The seven high dams on the main stream and the Cove Creek Dam on the Clinch River together make a total lift about equal to that of the Boulder Dam. The fact that only one very high but comparatively short dam is needed on the Colorado River makes possible a much lower construction cost, compared to the amount of water impounded, than is required on the Tennessee where the dams are relatively low but long and many are required. The total cost of the Colorado River project is estimated at \$165,000,000 as compared to \$1,200,000,000 for the Tennessee project.

The dams on the Tennessee River project will provide navigable waterways of about 1,900 miles; the Colorado River project is useless from this standpoint. On the other hand, the waters of the Colorado will be greatly needed

for irrigation purposes<sup>16</sup> and city water supplies, mostly in the arid region of southern California, while the waters of the Tennessee are not needed for these purposes.

On the Colorado River project the Federal Government stops with the production of energy, all of which is sold under contract to private companies and the city of Los Angeles, to be distributed by them for power and light purposes. On the Tennessee, the United States Government will use part of the electricity produced in the production of fertilizer materials and distribute and sell the surplus power wherever it may, being especially anxious to sell to local governments and cooperative groups of citizens or farmers for their own distribution on a non-profit basis.

#### *Administration of the Tennessee Valley Project*

In order that the above purposes may be fulfilled, Congress enacted the Tennessee Valley Act of 1933. This act set up the Tennessee Valley Authority, a corporation, to have actual charge of the maintenance and operation of "the properties now owned by the United States at Muscle Shoals, Alabama, in the interest of the national defense and for agricultural and industrial development" and the improvement of navigation on the Tennessee River.

The Tennessee Valley Authority consists of three members, called the Board, appointed by the President with the consent of the Senate. Their tenure of office is fixed at nine years with the exception of the first appointments, one of which is to be for three years, one for six years, and one for nine years. The members of the Board must not be interested in any business "which

<sup>16</sup> In bringing the water from Boulder Dam to the Los Angeles metropolitan water district it will be necessary to pump it over an elevation of about 1,600 feet. To

pump 1,500 second feet of water over this elevation will require about 350,000 firm horsepower of electrical energy.

would adversely affect the success of the Corporation in the production of fertilizer or in the production and distribution of power," and they "must profess a belief in the feasibility and wisdom of the Act."

The Board is given power to construct dams, reservoirs, power houses and structures, transmission lines, navigation projects, and any works incidental to the above, and to unite the various power installations with transmission lines. It is given power to acquire, in the name of the United States, all necessary real estate and to exercise the right of eminent domain, if necessary, to condemn the property it needs if it cannot be purchased at reasonable prices.

In order to finance its immediate operations, the completion of works at Muscle Shoals and construction of Cove Creek Dam, the Board is authorized to issue and sell United States bonds to the amount of \$50,000,000. It may complete the project at Muscle Shoals when the President "deems it advisable." The Secretary of War or the Secretary of the Interior is authorized to construct Cove Creek Dam and turn it over to the Board for operation.

The policy to be followed by the Board in the operation of these units is to "use the Muscle Shoals property so far as may be necessary to improve, increase, and cheapen the production of fertilizer or fertilizer ingredients" and to enable the Board to do this it is given specific authorization to manufacture and sell fixed nitrogen and fertilizer ingredients by use of the existing plants, or by modernizing the existing plants, or by constructing new plants, or by any other method or methods for nitrogen fixation that it finds to be profitable.

The Board is to be guided in the disposal of any surplus energy by the

stated policy of distributing and selling it, so far as practical, equitably among the States, counties, municipalities within transmission distance of the plants. It is also directed to follow the policy of operating these properties in the interest of the section as a whole, particularly of the domestic and rural consumers, and the sale of power to industries is to be considered a secondary purpose to be used in such a way as to secure a high load factor and such returns as will bring about the lowest possible rates to domestic and rural consumers.

In case power is sold to companies for the purpose of resale at a profit, the companies must agree to sell according to a schedule of prices set up by the Government and, in order to enable the Government to accomplish best its purposes, the Board is authorized to construct transmission lines from generation plants to the localities where the energy is to be distributed.

The President is authorized to lease, within a year, fertilizer plant Number 2, Waco Quarry, and the railroad connecting them, to any responsible farm organization or to a corporation formed by it, for a period of 50 years for a rental of not less than one dollar per year, provided that the plant may be used only for the production of fertilizers or fertilizer ingredients. The lessee is not required to purchase power from the Muscle Shoals plant but may purchase from any source whatever. Naturally, it is expected that such farm organization would find it advantageous to purchase from the government plants.

The Board is authorized to experiment by making arrangements with farmers or farm organizations for large-scale use of new forms of fertilizer under such conditions as to determine their economic value in production. It may es-

establish, maintain, and operate laboratories and experimental plants in order to discover the cheapest and best method of producing nitrogen for military purposes and for production of nitrogen and other fertilizer materials for agricultural purposes.

The President is authorized to make such further "surveys and general plans as may be useful in guiding the actions of Congress and the several States for the general purpose of fostering an orderly and proper physical, economic and social development of said areas," and he shall "from time to time, as he deems proper" make further recommendations to Congress for additional legislation and appropriations to complete the full program which consists of "(1) the maximum amount of flood control; (2) the maximum development of the Tennessee River for navigation; (3) the maximum generation of electric power consistent with flood control and navigation; (4) the proper use of marginal lands; (5) the proper method of reforestation of all lands in this drainage basin suitable for reforestation; and (6) the economic and social well being of the people living in the Tennessee River basin."

Necessarily, the completion of the ultimate project lies in the remote future, but the completion of the installation of the power units and nitrate plants at Muscle Shoals and the construction of the Cove Creek Dam will make a good beginning. Enough power and

fertilizer can then be produced at these plants to prove the feasibility of the project from the standpoint of these key industries.

After over 100 years of investigation and legislation with respect to this project and after long years of bitter controversy as to the propriety of government operation as against private operation of the properties constructed in the Tennessee River basin, a definite step has at last been taken and this long projected development is to be carried out.

The need for flood protection in this region is known; the presence of rich undeveloped resources is common knowledge; that much power can be developed is demonstrated; that the Tennessee River can be made a useful transportation facility is shown; and the need of a domestic source of nitrogen, for explosives in time of war and for fertilizers in time of peace, is well recognized.

Of course, it is too early to predict the success of the experiment or to formulate any definite conclusions with respect to it. These materials indicate the scope and importance of the undertaking of the Federal Government in its new and far-reaching attempt to stimulate development of the economic and social possibilities of so large a region. If successful, this project may well be a landmark pointing the way to a more active governmental policy in assisting the development of the natural resources of the country.

## Development and Taxation of Private Recreational Land

By GEORGE S. WEHRWEIN and ROBERT F. SPILMAN

RECREATION has found a "place in the sun" side by side with agriculture and forests. Before the World War agriculture was believed to be the ultimate use for all land which was not desert or rugged mountains. Forests and national parks found a place, to be sure, but their place was the few thousand acres which the plow could not claim. Now millions of acres are called submarginal for agriculture, but "suitable" for forests. Foresters, however, have been warned that merely because these vast areas are now available for tree growth is no justification for calling them economically suitable for forests. Land may be submarginal for forestry as well as for agriculture, and surpluses just as possible for wood products as for farm products. Therefore, the ultimate use for large areas of land in the United States will be recreation in its broadest aspects.<sup>1</sup> However, the very character of this land use proclaims its public nature, and this means that the great bulk of recreational land will be owned and managed by the various governmental units of the United States in the interests of the public.

On the other hand, privately owned recreational land has been one of our land uses for many years. People have bought land for private game preserves, summer homes, cottages, and "resort" hotels. Boys' and girls' camps and clubs of various kinds have grown rapidly during the last decade, and have bought considerable land in the forested areas of the Lake States and elsewhere.

<sup>1</sup> P. S. Lovejoy, "Concepts and Contours in Land Utilization", 31 *Journal of Forestry* 381 (April 1933);

In fact, at one time there was a feeling that the demand for private recreational land would be sufficient to make up for the decrease in demand for farms in northern Wisconsin after the War. For a time this belief seemed somewhat justified, for in 1924-25 a boom in the development of land for resorts and summer homes spread throughout the Lake States. It is reported that land buyers came from Chicago in the dead of winter and went over the country on snowshoes to locate desirable land for summer cottages and resorts. The boom soon ended, however, and the present business situation has depressed the market for recreational land still further.

What are the possibilities for developing a second Switzerland in the Lake States? The region has great natural resources for this purpose, the Great Lakes, thousands of inland lakes and streams, and a variety of scenery. The reforestation activities of the Federal Government, the states, and counties will in time change much of the cut-over land into green forests which mean so much to the recreational resources of a region. In addition to the public forests, these states are developing parks and game preserves. But the local units of government are also interested in bringing the millions of acres of "idle" land into some form of private use, not only in order to increase population and industry but also to increase the taxable wealth of this area. Specifically, how

Aldo Leopold, "Wilderness as a Form of Land Use", 1 *Journal of Land & Public Utility Economics* 398 (October, 1925).



much of northern Wisconsin can reasonably be expected to become privately owned resort land? To answer this question, a study was made in three northern counties—Vilas, Oneida, and Forest—in 1930-31. A more recent study of land resources and taxation in a neighboring county, Langlade, yielded additional information.<sup>2</sup> These studies showed that not more than 16% of the area of the county most suitable for resort purposes can expect to become private recreational land, and but 8.5% of the next best county. Indications from other studies are that not more than 5% of the area of the other counties which have abundant lakes and streams will become private recreational land. However, these studies considered utilization by resorts, clubs, camps, and summer homes, and did not include private game preserves which require relatively large tracts of land compared with the other uses mentioned. In other words, even if all the "available recreational" land were fully developed, the problem of "idle" land or non-taxpaying land would not be solved for Wisconsin or the other Lake States—Minnesota and Michigan.

Recreation uses actually occupy but a small area because riparian land alone can provide the summer home owner with the opportunity to fish, swim, and boat, and to enjoy the scenery which a body of water affords. A small area bordering a lake may provide these forms of recreation almost as well as a much larger tract; consequently, it is not area, but frontage which is valuable. During the boom land was advertised at \$25 a front foot on lakes, but most of it was quoted at much lower figures.

Although clubs and camps use larger areas than summer homes or hotels, these are relatively few in number. In 1930 Vilas and Oneida Counties together had 34 camps and 41 clubs, but 229 hotels and 3,400 summer homes and cottages.<sup>3</sup>

Even if a county has a large number of lakes and streams, this does not mean that it has an abundance of recreational land. Not all frontage is suitable for summer homes or resorts. Sandy beaches or high banks with beautiful views command high prices, but swampy shores, overflow land, or land where all the trees have been removed have little value for this purpose. Some farmers and lumber companies have destroyed valuable lake frontage by clearing the land to the water's edge. Some of the logging companies are now leaving a strip of timber around the lakes, knowing that the land will bring more as frontage than as timber land. There also seems to be a "saturation point" in lake development; that is, a small lake will look crowded and congested as soon as a few buildings have been erected on its shores. Purchasers hesitate to buy land after this point has been reached. On the other hand, a large lake may be completely surrounded by cottages placed on well-wooded lots of a reasonable size without appearing congested. Finally, there are some lakes in state parks, forests, and Indian reservations whose shores are publicly owned. How far these lands will be used by hotels or cottage owners depends upon the leasing policy of the state, county, or Federal Government. During the boom people became aware of the apparently limited amount of available frontage. Speculators bought

<sup>2</sup> George S. Wehrwein and Kenneth Parsons, *Recreation as a Land Use*, Wisconsin Agricultural Experiment Station, Bulletin 422, April, 1932. The study of Langlade County will be published soon. Other studies in

land utilization have some information on the extent of recreational land and its importance in the tax base.

<sup>3</sup> *Recreation as a Land Use*, op. cit., p. 13.



without inspection everything called a "lot" on the government survey maps; that is, all land with a shore line (Chart I, Figure 1). They hoped that it would prove suitable for resorts or subdivisions, and expected to take out a large profit when the constantly increasing demand collided with a definitely fixed supply of riparian land. Many of them not only dealt in "acres," but also laid out subdivisions or "plats". Since these plats are recorded in the office of the register of deeds, it is possible to get some idea of the trend in recreational land activity from the public records. However, the figures do not include the homes built on unrecorded lots, or on larger tracts of land. In some cases clubs, hotels, or wealthy individuals have bought one or more sections of land including several lakes.

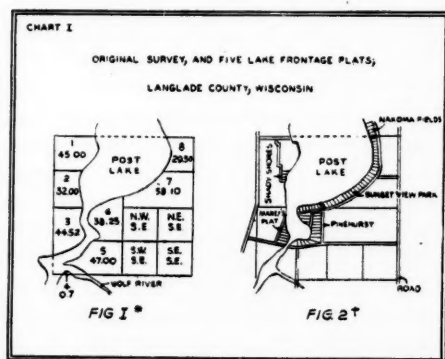
### *Platting Lake Frontage*

The subdivider usually buys a "government lot" or two, and plats a row of lots, perhaps 50 feet wide, fronting on the lake and extending back 100 or 200 feet. A road is laid out back of the lots leading to the public highway. The work is done by a surveyor; an official map is made showing the exact location of the plat and the size and boundaries of each lot. (Chart I, Figure 2.) This map is placed on record in the office of the register of deeds of the county. The lots are numbered, and so listed on the assessment rolls of the town. A suggestive name, such as "Whispering Pines" or "Shady Shores," adds to the advertising value of the plat.

Some subdividers not only platted the riparian land, but laid out much additional land. The plat often resembled a city subdivision with absurdly small lots and streets laid out on a gridiron pattern. Usually a small

tract of public beach is reserved for those whose lots do not front on the lake. One of the extreme cases of this kind was a subdivision with 1,725 separate lots in Vilas County. All these had to be carried as separate entries on the tax rolls of the town and advertised separately when the subdivider failed to pay the taxes. More than 1,000 of the lots were tax delinquent in 1930. To avoid further expense, it was decided to permit the subdivision to revert to "acreage."

Unless large areas of non-riparian land are included in the plat, subdividing tends to decrease the area of land in recreational use instead of increasing it. Before platting, the entire government lot or forty is carried on the assessment roll at a valuation based upon its future use as resort land. In the study made in the three Wisconsin counties, all such land was listed as "potential recreational land" in contrast with the area in active use by resort owners, clubs, and camps. Com-



\* Figure I shows the original survey lines for Section 11 of Township 34, Range 11 East, now a part of the Town of Elcho, Langlade County, Wisconsin. Only the southeast quarter is laid out in the usual forties. Whenever the survey lines touch a large river or lake, as in this section, the surveyor runs his lines to the lake, then along the shore until he meets another "forty" line. Bodies of water treated in this way are said to be "meandered" and the resulting irregular tracts, called "lots", are numbered, and the area recorded on the official map as shown in Figure I. The area of lots varied from less than an acre, as indicated by Lot No. 4 in this section (0.7 acre), to almost 80 acres.

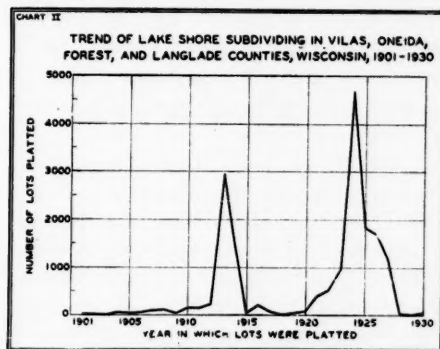
† Figure II shows the location of five "frontage plats" on Post Lake in this section based on the Langlade County Atlas of 1927.

pared with the 4% now used for resorts, summer homes, and other recreational uses, Oneida County has 4½% of its area suitable for future development of this type. In Vilas County 7.2% of the land area is potential recreational land compared with the 8.5% now so used. Being taxed on its future use, such land forms a substantial part of the tax base of resort counties. However, if there is no prospect of development within a reasonable time, its status is like that of cut-over land or any other land held for sale. A time will come when the burden of taxes will exceed the price at which the land can be sold, and the owner will probably let the land revert to the county as the lesser of two evils. Since platting takes the cream of the government lot for summer cottages, the remainder of the tract will have no more value than the surrounding cut-over, farm, or timber land. Therefore, the estimate of 16% as the ultimate limit for the development of riparian recreational land in Vilas County is an overstatement, especially if platting for resorts and summer homes should become the predominant type of land use.

The platting of land for summer homes began in a small way about 1900 in the four counties studied. There was a slight boom in 1913-14, when 19 plats with over 4,000 lots were laid out, but the real boom came in the four years 1924 to 1927 when 137 plats were recorded and 9,370 lots were offered for sale. By 1930 over 17,000 lots had been laid out in the four counties. Of these, Vilas County alone had 9,000. After the boom, subdividing stopped entirely in two of these counties, but new subdivisions were laid out in different parts of the State, for 205 plats consisting of 13,038 plated lots have been recorded since 1927, bring-

ing the total number of lots plated for summer homes in the State to approximately 200,000 (Chart II).

In spite of the fact that riparian land seems to be a natural monopoly, the "production" of sites for summer homes soon exceeded the demand. The demand fell off with the decline in purchasing power, and also because the vacation habits of people seem to have changed. People evidently prefer to motor to different parts of the United States and Canada instead of being tied to one spot by an investment in a permanent summer home. The same factor has also affected the resort hotels; instead of having many "permanent" guests who stay for a week or so, they serve many transient motorists.



Even in normal times it is doubtful whether a considerable fraction of all the lots laid out since the World War could have found buyers by this time. The consequence is many unsold and unimproved lots. In 1930 over 9,000 of the 11,000 plated lots on the tax rolls of Vilas and Oneida Counties were unimproved; only 1,823 or 16% were improved.

In Langlade County nearly ½ of all the lots had been plated during the 23 years preceding the 1924 boom. Of these, 15% were still in the hands of the subdividers, and 65%, though sold,

were still unimproved in 1931. During the boom more lots were laid out than in all the preceding years, but 68% of these have not even found buyers. Only 11% of the lots in the County were improved in 1931.

#### *Social Control over Recreational Land*

The rapid subdivision of lake frontage brought about serious abuses. Taking advantage of the desire of city people for out-of-door recreation, subdivisions were laid out on bare, cut-over land, without shade or access to a desirable lake. These looked good "on paper," but were distinctly submarginal as places for a summer residence. Some of these subdivision projects were tied up with high-pressure sales campaigns involving newspaper subscriptions and other shady schemes. In one case, a man platted the same land three different times, and sold parts of the same territory to different persons at each platting.

Another problem arose from congestion and lack of sanitation facilities. Small lots, no control over the disposal of sewage and waste, polluted bathing beaches, and dangers from diseases led to the enactment of a law in 1927<sup>4</sup> granting to the State Board of Health the power to regulate the platting of lake frontage. This is done in cooperation with the Real Estate Brokers' Board and the Regional Planning Director of the State Highway Commission. These bodies have control over plats in all counties except those which have their own park commissions or where plats are already under the jurisdiction of cities of the first, second, or third class. Plats must have the approval of town boards as well as the two state boards mentioned above.

The Real Estate Brokers' Board is the one which grants licenses to realtors and supervises them. This permits the state to check fraudulent developments, while the State Board of Health examines the physical and sanitary aspects of the plat before approving it. Certain rules and regulations must be met by every subdivider. Main roads must have a minimum width of 50 feet, secondary roads 40, and side roads 20 feet. Lots must be at least 50 feet wide and 125 feet deep or, if they are irregular in shape and size, contain at least 6,250 square feet. The Board encourages the preservation of scenic and historic features of the landscape and reasonable variations of the rules are always permitted. Carefully prescribed rules have been laid down in regard to sewage, cesspools, garbage and refuse disposal, water supply, and general sanitation. The subdivider is required to enter these restrictions in the deeds to the lots. Only one one-family residence, with boat house and private garage, is permitted on a lot. No building is to cover more than 20% of the lot area.<sup>5</sup>

Since 1927 the Board of Health has approved 205 plats consisting of 13,038 lots. Twenty per cent of the plats were not approved at once. Some had to be corrected, while others had to be withdrawn completely. It is unfortunate that the \$5,000 a year appropriated to the Board for this work was reduced first to \$2,000, and recently withdrawn altogether. This means that, unless the Board finds other resources, the only check on platting will be the approval or disapproval of the local town boards. In the past these town boards have been liberal in their approval, knowing that errors would be checked and cor-

<sup>4</sup> Wisconsin Laws, ch. 236.01 to 236.17: 140.05.

<sup>5</sup> "Rules, Regulations and Standards Made under

Authority of Section 140.05 Statutes", *Wisconsin Lake and Stream Shore Platting and Sanitation Code*.

rected by the State Board of Health. For example, the members of one town board approved a plat on which the roads did not connect with other public highways, assuming that the State Board would detect the mistake anyway.

There is a close resemblance of platted lake property to urban subdivisions laid out beyond the city limits and beyond the jurisdiction of zoning laws and city plans. In some cases high-class lake property developers have followed the practice of using private restrictions to protect the amenities of the lake and the scenery. The cutting of timber, building of unsightly cottages and garages, even the clearing of land for gardens are prohibited in one case. The entire area has been made a game refuge to maintain the deer and other wild life as a part of the attractiveness of this plat. However, the amendment to the Wisconsin county zoning law permitting counties to zone land for agriculture, forestry, and recreation has extended police powers to non-urban areas. Resort counties have visualized the possibilities of this law. Vilas County is planning a zoning ordinance in which separate recreational districts are being set aside in addition to the forest zones and the "unrestricted districts." In the recreational zones, agriculture is excluded, but year-long residence is permitted.<sup>6</sup> Finally, another clause in the Wisconsin platting law requires the subdivider to build a public road to the low-water mark of a lake every half mile, providing natural conditions permit this. The public is thereby assured that lakes will not be monopolized by the riparian owners.

#### *Recreational Land as a Part of the Tax Base*

Although recreational land is small in area, its importance in the tax base of

some of the northern counties is great. The entire area of recreational land, used and potential, absorbs only 16% of the land area of Vilas County, but Table I shows that this type of land

TABLE I. PROPORTION OF THE AREA AND OF THE TAX BASE OF TOWNS IN RECREATIONAL LAND\*

Type of Recreational Land	Oneida County		Vilas County		Forest County	
	Area	Tax Base	Area	Tax Base	Area	Tax Base
Developed...	4.0%	26.9%	8.5%	47.2%	.8%	3.3%
Potential...	4.5	10.3	7.2	15.9	1.4	2.7
Total.....	8.5	37.2†	15.7	63.1‡	2.2	6.0

\*Recreation as a Land Use, *op. cit.*, p. 23.  
 †21% of the entire county, including cities.  
 ‡56.3% of the entire county, including cities.

represents 63% of the taxable real estate of the towns of this county, or 56% of the county's taxable real property, if the city of Eagle River is included. The 8.5% of the land area classed as recreational in Oneida County pays 37% of the taxes of the towns, or 21% of the total general property taxes of the entire county. Other northern Wisconsin counties do not have the same development of resort property, but Washburn has 12% of its assessed value in recreational land, Forest 6%, and Langlade 2.6%.

Part of the per-acre value of recreational real estate is attributable to the high value of the improvements placed on it. In Vilas County, for example, hotels, resorts, and camps used about 15,000 acres of land in 1930, assessed at about \$495,000, but the improvements thereon were valued at over \$879,000. The ratio of the value of the improvements to that of the land for homes, cottages, and camps was 1½ million to one million. Compared with these, the

<sup>6</sup> See W. A. Rowlands, "County Zoning for Agriculture, Forestry and Recreation", 9 *Journal of Land & Public Utility Economics* 272 (August, 1933).



improvements which have been built on cut-over or timber land were almost nil.

#### *Tax Delinquency on Recreational Land*

Recreational land constituted not only a large slice of the taxable wealth, but until 1930 the owners of resort property, whether in active use or held for sale, were more prompt in paying their taxes than most other land owners. If there were any delinquency in the spring, these owners generally redeemed their properties before the summer was over.<sup>7</sup> However, since 1930 the situation has changed. The Langlade study shows that certain classes of recreational land are as much "in the red" as some other types of land. In this county  $\frac{1}{3}$  of the agricultural land was delinquent in 1932, 58% of the land owned by speculators, and almost 61% of the recreational land. These figures are based upon area and not value. Delinquency of recreational land was abnormally high because two clubs had contracted for about 12 square miles of land all of which had been dropped for taxes. This overshadows completely the smaller acreages used by resorts or summer homes. But hotels and camps had almost 52% of their land delinquent, and 57% of the platted property had not paid taxes for a year or more. Naturally the unsold, unimproved lots are permitted to go delinquent before the home owner on improved land neglects to pay his taxes. In one section of Langlade County 254 out of the 363 unimproved lots in the various subdivisions were delinquent in 1931. Taxes had been paid on 65% of the improved, but on only 35% of the unimproved lots. The subdividers had more delinquency on their holdings than other owners, including those who bought platted

lots with the intention of reselling. This delinquency was predominantly for the previous year, however. Lots suitable for summer homes are not likely to revert to the county, but the tax certificates are bought by outsiders who are glad of the opportunity of securing lake lots much below the average selling price. The county officials, however, have the difficult task of keeping records on the numerous separate lots, particularly in the "wild cat" subdivisions.

#### *Taxation of Resort Property*

Taxes become burdensome to the subdivider if he cannot dispose of his lots soon after he has laid out his plat. He has the initial costs of the land, surveying, mapping, and registering the plat. He has to meet the requirements of the State Board of Health and lay out the roads at his own expense. Advertising and selling costs begin as soon as the sales campaign is under way. To illustrate these costs, two subdivisions were selected out of the 27 in Langlade County. The owner of "Pinehurst" platted only 13 lots in 1921, leaving the remainder of his land as acreage. He sold eight at once. In 1925 he platted another strip into 22 lots, of which he was able to dispose of all but four by 1931. The original investment in land plus 5% interest on all outlays and taxes are estimated to have cost the owner over \$1,600 during the 11 years he was selling the land. The first year his taxes were only 89 cents per lot. Taxes on the unplatted part averaged only \$17 a year before 1925, but after that his taxes began to mount. During the 11 years he paid a total of \$480 taxes on the property he owned.

The owner of "Sunny Waters" was not so fortunate.<sup>8</sup> He laid out his en-

<sup>7</sup> *Recreation as a Land Use*, op. cit., pp. 26-28.

<sup>8</sup> Pinehurst is located in Section 11 (Chart I, Figure

2) but Sunny Waters is in another part of Langlade County.



tire 40 acres in 37 lots in 1927 just at the close of the recreational land boom period. His original costs plus taxes and interest for five years were over \$2,800. His taxes on the total area jumped from \$8.55 before subdividing to \$244.40 after he had platted the land, an increase of over 2,000%. By 1931 he had sold only 13 lots to three individuals, one of whom had bought most of these lots for speculation. The subdivider's total tax burden amounted to \$980 during the five years or \$196 annually. Both of these subdivisions are small ventures compared with the 100 to 1,000 lot plats sometimes found, and the taxes and carrying costs were small in comparison with those on another subdivision in Langlade County laid out in 1925 with 109 lots, of which 85 were still unsold in 1931.

The problem of taxation takes a different slant after the land has been purchased by the ultimate user. Resort property is in active use only during three or four months of the year. The hotel owner must make his profits within that time to cover his current expenses as well as an overhead spread over the entire year. The average home owner spends even less than three months in his cottage. Part of the overhead consists of the taxes, which are a compound of the assessment and the rate. In normal times the assessment of valuable summer homes and cottages and recreational land in general has been very reasonable. The study made in the three northern counties showed that the entire recreational property of Vilas and Oneida Counties was assessed at about 8½ million dollars in 1929. On the other hand, the actual value of the investments in resorts and homes within an area 40 miles square in the

vicinity of Minocqua was placed at 39½ million dollars in 1930.<sup>9</sup> "Of this, private summer homes take the lead with a value of \$24,500,000. Developed frontage is next at \$10,000,000. Summer resorts and light housekeeping cottages represent \$3,500,000. Boys' and girls' camps are valued at \$1,500,000."<sup>10</sup> Allowing for the over-optimism of a "booster" article and for the fact that the areas are not identical, still the difference between 8½ million dollars assessed valuation and 39½ million dollars of actual investment value is significant. The testimony of local assessors and of the State Income Tax Assessor of this assessment district confirms the essential accuracy of this writer's statement.

The *Progress Report* of the federal Forest Taxation Inquiry also throws some light on the assessment of resort property. In Wisconsin assessors are instructed to appraise real estate at "true" value, which means the price received in the open market. Table II

TABLE II. ASSESSED VALUE AND VALUE REALIZED AT SALES AND RATIO OF ASSESSED TO SALES VALUE OF 6,445 RURAL PROPERTIES IN 19 SELECTED COUNTIES OF WISCONSIN, 1925 TO 1927\*

Type of Property	Number of Properties	Assessed Value	Value Realized at Sales	Ratio of Assessed to Sale Value
Farms.....	1,419	\$2,911,890	\$4,143,108	70%
Cut-over...	2,391	1,966,468	1,912,108	103
Timber....	119	468,969	1,028,140	46
Resort....	1,649	782,581	1,579,605	50
Residential and Business	867	527,589	950,055	56
Total...	6,445	6,657,497	9,613,016	69

\**Progress Report No. 12*, November 15, 1930, *Forest Taxation Inquiry*, "Assessment Ratios of Forest Property and other Real Estate in Wisconsin", by R. C. Hall.

presents the prices at which 6,445 rural properties were sold during 1925

<sup>9</sup> Ivan Clyde Lake, "Do You Really Know Wisconsin?" 8 *The Wisconsin Magazine* 4 (September, 1930).

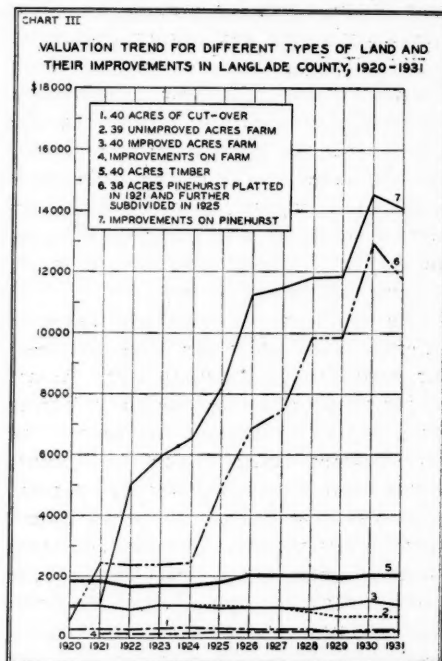
<sup>10</sup> *Ibid.*

to 1927, and the figures at which they had been assessed. The last column shows the ratio of assessed to market value. A low ratio indicates that the assessor failed to appraise at the value expected of him. This might be the result of a deliberate policy on his part, a lag between the trend in prices and assessments, or the failure to appraise certain classes of property correctly.

It will be noted that timber land had the lowest assessment when compared with the price obtained on the market. However, the number of sales was so small that the figures may not be representative. Farm land was assessed at 70% of its market value, but cut-over land was carrying an assessment higher than the actual sale value of the land. This high ratio was the result in part of the assessment policies of local assessors, and also of the fact that the price of cut-over land was declining rapidly, and assessors were slow or loathe to make the adjustment. State income tax assessors had pointed out this discrepancy in their reports as early as 1927 and 1928.<sup>11</sup> With respect to resort property, on the other hand, this was the period of active development; values were still going up, whereas the assessments tended to be based on prices received in previous years. The fact that the business and residential property was also undervalued suggests that assessors in general fail to get at the full value of this type of real estate.

However, the situation of 1925 to 1927 is not the situation of 1930 to 1933. Trends in land values and assessments have become more erratic. The Langlade survey offered the opportunity to trace the assessment and tax history of separate tracts of land in the first four classes in Table II. Data on the

assessed valuation and taxes were obtained for 40 acres of timber land, a cut-over forty, a farm with 39 acres of improved land and 40 acres of unimproved land, and a government lot of 38 acres which was potential recreational land in 1921, was partly platted in 1921 and again in 1925 (the "Pinehurst" subdivision already referred to). Chart III shows the trend in valuation



of each tract as a unit throughout the period of 12 years.

The following facts are noteworthy: (1) The speculative or cut-over forty was valued least, although in proportion to its selling value even this was probably too high. But as a source of taxation its value fell from \$8.10 in 1924 to almost \$5 an acre by 1931. Since about 67% of Langlade County consists of land of this type, the decline

and recommended a reduction of about 25% in the valuation of cut-over land.

<sup>11</sup> The 1928 Report for Bayfield County showed a ratio of assessed to market value of 130 for 1926-27,

in value added to a delinquency or reversion to public ownership amounting to 58% shows how far this part of the County's tax base had shrunk. (2) The assessment on the unimproved portion of the farm had been reduced, whereas it had been increased on the improved forty. (3) In 1920 the timber forty was assessed over six times as high as the cut-over forty, and its value continued to increase during the 12 years. This shows the contrast between timber and denuded land as a taxable resource. (4) The bare land of the government lot started with a valuation below that of the improved farm in 1920, but in 1930 was assessed at \$12,950, or 23 times its valuation in 1920. The valuation of the improvements rose even faster and higher.

TABLE III. TAXES PAID IN 1920, IN 1931, AND TOTAL TAXES 1920-31 ON FIVE TRACTS OF LAND IN LANGLADE COUNTY, WISCONSIN

	1920 Taxes	1931 Taxes	Total Taxes 1920- 1931
Cut-over 40 acres.....	\$10.35	\$ 5.48	\$106.89
Unimproved part of farm, 40 acres.....	36.19	22.51	474.87
Improved part of farm, 39 acres.....	36.19	43.17	612.84
Timber, 40 acres.....	64.39	68.19	954.44
Government lot, 38 acres with plat.....	22.89	641.89	5469.25

The actual tax burden resting upon these four tracts of land is shown in Table III. The total taxes for the 12 years on the cut-over forty amounted to less than  $\frac{1}{4}$  of the taxes levied on the same area of unimproved land in the farm. One wonders whether there was enough difference in the soil and location to justify the difference. The cut-over forty became tax delinquent after the owner had paid \$71 taxes for seven years, and it is now county property. The owner of the farm paid almost

\$475 in 12 years on the unimproved forty, but, being a part of a farm, the taxes were kept up. The burden of carrying any land is graphically shown in the case of the timber tract. Almost \$1,000 were paid in taxes in 12 years in a period of falling prices for stumpage. However, the somewhat smaller tract of recreational land contributed \$5,469, or over  $2\frac{1}{2}$  times the taxes paid by the other four forties put together. In fact, one of the platted lots alone was the source of more revenue for the town than either the timber land or the entire 79 acre farm. This lot was improved in 1922, and the owner had paid \$1,236.43 taxes on his land and improvements by 1931 (See Table V).

Keeping in mind the trend in assessments on the various types of land, an examination of valuations and taxes on nine individual Pinehurst lots and improvements thereon is of interest (Table IV).

TABLE IV. ASSESSED VALUE OF LAND AND IMPROVEMENTS ON NINE LOTS IN PINEHURST—1921-1930

Lot Number	Assessed Value of Land		First Assessment on Improvement with Date When Made	Assessed Value of Improvement 1930*
	1921	1930		
1.....	\$250	\$600	\$250 (1922)	\$600
2a.....	250	300	250 (1923)	450
2b.....	†	300	250 (1923)	450
3.....	250	600	450 (1924)	600
4.....	250	600	2000 (1922)	5000
5.....	250	600	500 (1926)	600
6.....	250	600	300 (1921)	1200
7.....	250	600	500 (1922)	750
8.....	250	600	800 (1921)	1200
TOTAL.	\$2,000	\$4,800	\$53,000	\$10,850

\*The increase in value of improvements may be attributable to new buildings or additions to old structures, as well as to an increase in the assessment *per se*.

†Lot 2 was divided in 1923, and improvements were placed on each part separately.

It will be noted that the assessments on the improvements doubled, and on the bare land more than doubled within the period covered by the table, quite in contrast with the assessments on the

TABLE V. TAXES ON FIRST NINE LOTS SOLD, PINEHURST, 1921-1931.

Lot Number	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	Totals
Lot 1...	\$8.83	\$19.65*	\$30.75	\$27.24	\$29.97	\$21.69	\$29.34	\$26.28	\$31.99	\$37.27	\$27.36	\$290.37
Lot 2a...	8.83	9.83	15.38*	15.42	18.32	13.26	17.95	16.07	19.55	23.30	17.42	175.33
Lot 2b...	.....	.....	15.38*	15.42	18.32	13.26	17.95	16.07	19.55	23.30	17.42	156.67
Lot 3...	8.83	9.83	10.25	25.41*	29.97	21.69	29.34	26.28	31.99	37.27	27.36	258.22
Lot 4...	8.83	88.43*	102.50	90.75	113.22	106.04	143.44	128.48	156.41	173.93	124.40	1236.43
Lot 5...	8.83	9.83	10.25	9.09	13.32	21.69*	29.34	23.36	28.43	37.27	27.36	218.77
Lot 6...	19.41*	49.13	51.25	45.39	46.62	33.74	45.64	40.88	49.76	55.91	42.30	480.03
Lot 7...	8.83	29.43*	30.75	27.24	29.97	21.69	29.34	30.67	37.32	41.93	31.10	318.27
Lot 8...	37.09*	49.13	51.25	45.39	46.62	33.74	52.16	43.80	53.31	55.91	42.29	510.69
Total...												\$3644.78

\*When lot was improved.

other types of land shown on Chart III. The actual annual taxes paid by the nine owners are shown in Table V. The general trend can be seen best by noting the taxes on Lots 6 and 8 since both were improved in 1921.

#### *Difficulties in Assessing Recreational Property*

The low ratio of assessed to sales value of resort and business property suggests that rural assessors have difficulty in evaluating this type of real estate. However, resorts are in a class by themselves. The cost of construction is unusually high because the materials have to be hauled many miles through the forests and over poor roads, but even if cost of construction is known, is this a true market value? After all, recreational property is luxury property depending upon a luxury market for its value.

Not only are there difficulties of assessment and differences and discrepancies between taxing areas, but there is also a lack of policy. Note, for instance, the stepping up of taxes on Sunny Waters from \$8.55 before platting to \$244.40 the year after platting, although few if any lots were sold or buildings constructed. On the other hand, lots in Pinehurst were assessed at \$25 while in the hands of the original subdivider, but valued at

\$250 as soon as sold. Five years later, when the second plat was laid out, all lots were assessed more nearly alike. Assessors vary in their assessment of farm land fronting on lakes. Some appraise the entire farm at the agricultural level until the owner begins to sell lots, after which the valuation of the entire tract is raised. In a case of this kind, the taxes become so high that the farmer can no longer develop the frontage. In other cases, the high assessment on the entire farm has tempted the farmer to subdivide the land on the lake with the hope of selling riparian lots, and thereby reducing his taxes on the remainder of the farm.

However, these difficulties are not insurmountable. Wisconsin is divided into assessment districts with a supervisor of assessments for each district. This official cooperates with the town assessors in perfecting appraisal technique through meetings, publications, and personal conferences. In this way assessment policies can be determined, and the difficulty of appraising unusual types of property can be overcome. Uniform, standardized practices help to iron out the discrepancies between towns as taxing units.

It has been said that Wisconsin has not reached the "saturation point" in the use of land for private recreation.<sup>12</sup>

<sup>12</sup> *Recreation as Land Use*, op. cit., p. 28.

Only a fraction of the land physically suitable for resorts, summer homes, etc., has been developed. However, physical suitability does not guarantee the ultimate utilization of the land for the purpose for which it is "suitable." The buying power of the people, the amount of leisure, their tastes and desires, as well as the competition of other states all will be factors in determining how much of the riparian land will become active recreational land. In the competition between states, the policy of a

given state in the treatment of the tourist will be an important element. The kind of highways, forests, game management, wild life, and taxation policies are certain to be considered in the choice of a vacation site or the location of a summer home. Recreational land should be neither exempt nor favored in a plan of taxation. But just as the Forest Crop Laws are an attempt to adjust the tax system to the peculiar nature of forestry, so a similar adjustment appears desirable for recreational land.



## A Method of Measuring Locomotive Maintenance and Its Use in Regulation

By R. W. HARBESON

**R**AILWAY operating statistics have scarcely received the attention, especially from professional statisticians, which their importance and possibilities warrant. The nature of railway operations, involving working forces scattered over wide areas without the possibility of close and continuous supervision, makes absolutely essential statistical controls in order to maintain efficient and economical operation. And yet, while most roads have made some use of such controls for a considerable period, their systematic and widespread development has been very recent. One of the few permanent and beneficial legacies of the period of federal operation was the stimulus it gave (in considerable measure the result of the efforts of Professor W. J. Cunningham, then on the staff of the Director-General) to the development and use of these devices of management.

But statistics of this sort are highly important for purposes other than as instruments of managerial control. Regulatory commissions, in their role as guardians of the interests of railway patrons and investors, have frequent need of such information. It is unfortunate that in some important respects commissions have lagged behind railway managements in the collection and use of operating statistics. This is the more unfortunate in the case of the Interstate Commerce Commission in view of the fact that the Transportation Act of 1920 directs that body to allow

the carriers as a whole an opportunity to earn a fair return on a fair valuation, "under honest, efficient, and economical management." Perhaps the Commission's failure heretofore to inquire systematically and comprehensively into the efficiency and economy with which the carriers are operated is related either as cause or result, or both, to certain deficiencies in the available statistics.<sup>1</sup> Control of accounts and security issues has given the Commission a reasonably satisfactory check on the honesty of the managements, but in cases involving changes in the general level of rates the collection and use of certain additional statistics bearing on efficiency and economy of operation would assist the Commission in reaching scientifically based conclusions.

The purpose of this paper is to suggest the merits of only one of a number of desirable additions to the publicly reported railway operating statistics. The data involved are the following: (1) monthly returns showing the number of each kind of locomotive (freight, passenger, and switching) turned out from the shops after each kind, or class, of repairs;<sup>2</sup> (2) monthly returns showing the number of miles run by these locomotives since their last preceding "shopping" for repairs of the same class. From the latter figures the *general* average mileage between shoppings of the same class over a period of years for each kind of locomotive can be computed. Multiplying the number of

<sup>1</sup>The Commission, in *Ex Parte 104*, is now conducting a comprehensive inquiry into the efficiency and economy with which the carriers are operated.

<sup>2</sup>Repairs made in railway shops are grouped into five classes, based upon their extent, under a uniform code of the American Railway Association.

locomotives of each kind turned out from the shops after each class of repairs each month by the general average mileage between shoppings of the same class made by that kind of locomotive over a period of years gives the approximate number of service miles restored each month by shopping. In other words, the shops each month restore a certain potential locomotive mileage, the assumption being that, on the average, the locomotives will be capable of making approximately the same mileage between shoppings of each class in the future as in the past. This potential mileage restored each month could then be expressed as a percentage of the miles run each month. The latter data are already publicly reported. The result would be an index of the adequacy of locomotive maintenance.<sup>3</sup>

The writer claims no originality with regard to this index; its desirability has long been effectively urged by Professor W. J. Cunningham, and possibly by others.

This information could be added to the published reports to the Commission without very heavy burden upon the carriers, inasmuch as most of the data are now collected and used by a large number of managements.<sup>4</sup> The chief additional burden, perhaps, would be in segregating the data for each kind of locomotive and for each class of repairs, tasks which may not now be generally undertaken. Despite their availability, however, the carriers are very reluctant to reveal the figures to

<sup>3</sup>It is, of course, impossible to predict with precision the exact number of miles which each individual locomotive will be capable of running between shoppings. This depends upon the age of the locomotive, care and competence shown by engineers, speed run, loads pulled, state of roadbed and track, quantity and quality of roundhouse attention, workmanship during shopping, and similar factors. For the purpose in hand, however, the use of average mileage between shoppings for each class of repairs and for each kind of locomotive, derived from the performance of the

outsiders. The writer requested this information from several representative systems, but received returns from only one.

The data presented in Table I are for a system of approximately 2,000 miles. Several limitations of the figures must be noted. First, not only do they cover only one system, but also they are for only an eight-year period. Second, they are, of course, not segregated for the different kinds of locomotives. This is an important defect, since it affects the figure used for the average mileage between shoppings. Passenger, freight, and switching locomotives characteristically make different mileages between shoppings, and the representativeness of a general average for all classes of locomotives would therefore be affected by the changing proportions of the three kinds of power in service. The steady decline in the passenger business during the period covered by the study obviously adds to the importance of this consideration.

In the third place, there is a similar defect in that the miles between shoppings are not segregated for each class of repairs. Hence, the figure used for the average mileage between shoppings would be affected by changes in the relative amount of each class of shopping done. Fourth, an important correction relates to the effect of the changing age distribution of the locomotives in service. A complement of new and improved locomotives would require less frequent shopping than a complement of locomotives of each kind on the system over a period of time, is reasonably satisfactory, since the differences in the performance of individual locomotives tend to compensate each other. But, as stated above, the averages used must be corrected for changes in the age distribution of locomotives in service and for changes in the amount of roundhouse attention provided for all locomotives.

<sup>4</sup>For a description of the use made of such data on the Illinois Central, see 83 *Railway Age* 1273 (December, 27, 1927).

TABLE I. LOCOMOTIVE MAINTENANCE RATIOS ON ONE RAILWAY SYSTEM, 1925-32.

Month	Ratio of Miles Restored to Miles Run							
	1925	1926	1927	1928	1929	1930	1931	1932
January.....	78.59	82.36	71.88	131.03	104.95	103.60	34.59	42.75
February.....	112.42	64.59	104.93	141.91	95.53	100.66	37.39	44.97
March.....	123.20	71.23	118.72	133.22	129.35	106.42	39.60	56.29
April.....	72.90	67.73	136.47	110.13	114.39	92.99	43.49	54.11
May.....	103.52	60.38	139.54	66.27	117.02	103.33	55.42	73.69
June.....	95.47	59.34	145.23	96.13	94.74	61.28	61.28	75.52
July.....	93.18	50.47	118.41	73.46	88.32	50.64	41.04	50.91
August.....	67.28	63.39	141.32	86.17	97.14	36.16	48.78	00.00
September.....	66.62	58.14	150.27	94.18	87.51	38.76	59.58	31.41
October.....	57.22	51.55	125.18	110.19	75.53	61.01	63.10	36.03
November.....	44.81	64.14	130.62	103.66	83.95	37.95	41.56	42.89
December.....	65.23	62.88	106.79	77.00	95.32	50.02	54.87	62.77
Ratio of Totals for the Year..	85.22	62.97	124.15	101.89	98.35	69.84	48.50	47.80
Total miles restored on basis of								
57,368 miles per locomotive.....						126,381,703		
Total miles run.....						153,616,292		
Ratio of miles restored to miles run.....						82.27%		

ment of old ones. Locomotives installed in recent years regularly make 150,000 to 200,000 miles between shopings, by comparison with 50,000 or 75,000 miles, or less, in the case of older locomotives in service. Moreover, new locomotives and "young" locomotives installed on the system during the years covered would contribute to the mileage run but would not enter the shops, or would enter them very infrequently, during this period. To some extent, therefore, the standard of maintenance here used is based on a sample of locomotives especially in need of maintenance—those entering the shops, or entering them rather frequently, during this period.<sup>5</sup> The consequence is some degree of overstatement of the deficiency in maintenance. Finally, a correction should probably be made to allow as a small offset to reduced shopping the effect of more roundhouse attention.

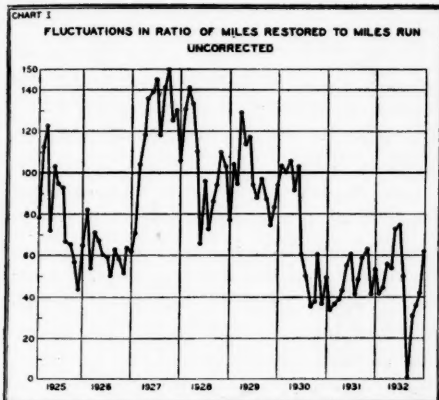
While these limitations may seem rather overwhelming, they are not of such a sort as to invalidate the use of

<sup>5</sup>I am indebted for acute and suggestive criticisms on this point and on others to Professor W. L. Crum of Harvard University.

the data *merely to illustrate the principle* involved in the method of measuring the adequacy of locomotive maintenance here suggested. Our interest is in the merits of the general method, particularly its use in regulation. The argument developed in this paper is in no way dependent for its validity upon these particular data.

It is not pretended, of course, that the data here presented are to be taken as representative of conditions on the roads of the country as a whole or of the individual system in question during previous years. But even allowing for this fact and the limitations set forth in the preceding paragraphs it is believed that Table I and Chart I convey significant information. They give a rough measure of the amount of deferred locomotive maintenance which has been accumulated in recent years on an important system. Apparently in only two years of the eight, 1927 and 1928, was there an excess of mileage restored over mileage run. For the whole period the ratio of miles restored to miles run was 82.27, representing an excess of miles run amounting to 27,234,589. This excess of miles run over

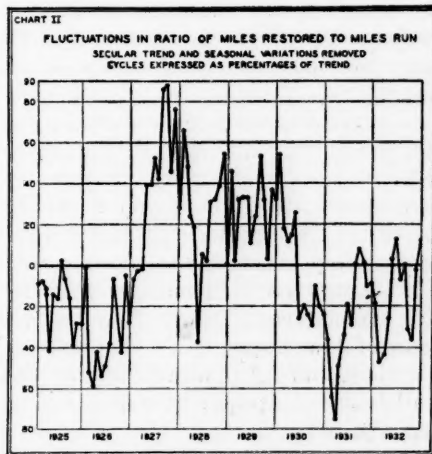
miles restored is equal to something less than the mileage run on the system in  $1\frac{1}{2}$  average post-war years or the two depression years 1931 and 1932. These facts should help us more definitely to assess the effect of the depression on the physical condition of an important part of the property of at least one railway system.



Since 1907 the Interstate Commerce Commission has been able to prevent the undesirable practice of charging items properly belonging under expense accounts as capital improvements, thus preventing the payment of dividends from capital and hence at the expense of the physical property and railway service. In order further to protect railway service the Commission should at least have definite and reasonably accurate quantitative measures of the amount of deferred equipment maintenance. The test of the adequacy of a rate level and of honest, efficient, and economical management would be the building up of sufficient maintenance reserves in good years to offset deficiencies in the income available for maintenance in bad years, after meeting other proper operating expenses and the proper claims of stockholders and

bondholders, and after providing for future expansion and improvements. So long as statistical measures of the adequacy of maintenance are lacking, the Commission will be handicapped in carrying out the mandate expressed in the rule of rate-making of the Act of 1920.

On Chart II the secular trend and seasonal variations of the maintenance ratios of Chart I have been removed and the cyclical and irregular fluctuations remaining have been expressed as percentages of the trend. The methods used in computation were conventional throughout. The secular trend was found to be  $-.45\%$  per month. The severe limitations on securing a significant trend for a period as short as eight years are fully appreciated, but the result is presented for what it may be worth as an historical fact. The



seasonal variations were removed by the ratio-to-ordinate method.<sup>6</sup> The average of the two middle-sized values for each month was taken as the month type in making the seasonal index. The

<sup>6</sup>Helen D. Falkner, "Measurement of Seasonal Variation," 19 *Journal American Statistical Association* 167 (June, 1924).



striking irregularity in the month-to-month fluctuations even after seasonal variations were removed seemingly suggests the desirability of attempting some program of regularization so as to increase the stability of employment among the shop forces. Such a program would, of course, be in addition to any broader program of leveling out year-to-year fluctuations.

A definite cyclical movement seems to be indicated on Chart II, there being  $1\frac{1}{2}$  cycles during the period covered. Too much weight cannot be given to this result, however, in view of the fact that the data cover only one system and a period of only eight years. Nevertheless, it is believed that the chart bears significantly on some questions of managerial policy. Two plans might be adopted by a management in dealing with the maintenance problems growing out of cyclical fluctuations in traffic and earnings. It might adopt the policy, suggested above as being desirable, of building up maintenance reserves in good years which could be used during lean years, thus minimizing the cyclical fluctuations in maintenance. This would have three advantages: (1) it would contribute to regularizing employment for the shop forces; (2) it would result in at least a proportionate part of the maintenance work being done during years of low wages and low prices of materials; and (3) it would increase the availability of equipment during heavy traffic periods.

Ideally, from the standpoint of the latter two considerations alone, as much of the maintenance work as possible should be done during depression years. Excess maintenance, in the form of an excess of miles restored, could be built up, which would reduce to the minimum the amount of shopping which would need to be done in periods of high

prices and wages, and would maximize the availability of equipment during the precise periods when this is a consideration of great importance. But in order to preserve the interests of the shop forces the latter policy would have to be limited, by providing that the actual amount of maintenance, measured in locomotive miles restored, be equalized so far as possible from year to year regardless of cyclical fluctuations in traffic and earnings. An allowance would have to be made, of course, for errors in predicting the volume of traffic from year to year as well as for secular trends in traffic. Our interest, however, is not in the merits of this broader question of planning locomotive maintenance expenditures, but in the application of the maintenance ratios discussed above, which would be a useful device for checking the adequacy of maintenance whether or not there be planning of the sort just mentioned.

Chart II shows that these results were partially attained on the road in question during the period covered, though seemingly not because of the application by the management of the foregoing principles. The maintenance ratios were low during the active and prosperous years, 1925 and 1926, and high during the year of business recession, 1927. A thorough going reorganization of the system which was in process during the first two years of the period is probably responsible in large part for this result. The maintenance ratios averaged slightly above 100 in 1928 and slightly below that figure in 1929, but there was a tremendous drop in the ratios during the succeeding years of depression. That the management (for whatever reason) was not in a position to apply the policy above suggested in any thorough-going fashion is indicated by the moder-



ate average rate of return earned by the company during this period. This is shown in Table II. The prolongation and unusual severity of the present depression might, of course, have compelled some deficiency in maintenance even if the suggested policy had been followed.

TABLE II. RATE OF RETURN ON INVESTMENT ON ONE RAILWAY SYSTEM, 1925-1932.

Year	Rate of Return on Investment
1925	5.65%
1926	5.78
1927	4.21
1928	5.49
1929	5.24
1930	4.80
1931	3.82
1932	2.82
Average for the period	4.72%

The other plan which a management might follow would be to build up an excess of miles restored in good years in order to tide over lean years. This policy would reduce the fluctuations in the rate of return upon the investment, but it would have the serious disadvantages of concentrating maintenance in periods of high wages and high prices of materials, of increasing the cyclical fluctuations in employment among the shop forces, and of reducing the availability of equipment in periods of heavy traffic. Clearly, this policy should be discouraged. Yet the recapture clause, coupled with the use of the annual basis rather than the average of a period of years in calculating the "fair return" to be allowed, has encouraged the carriers to adopt this expedient. From this point of view the repeal of the recapture clause in the recent emergency railroad legislation was a desirable step.

<sup>1</sup>"The Railroads' Relation to Business Recovery," address before the Chamber of Commerce of the United States, Washington, D. C., May 4, 1933. See also

This conclusion was stated by President Atterbury of the Pennsylvania Railroad in a recent address, as follows:

"As to the recapture clause, it penalizes efficiency of management in prosperous times and puts a premium upon extravagance when earnings are good. That is, we must plough maintenance costs into our properties when times are good, and wages and material prices are high; whereas, if maintenance were distributed over lean years, it would aid materially in leveling peaks and valleys, stabilizing industry and labor, and would accomplish these ends with economy to the railroads.

"The annual basis for the 'fair return' and the recapture clause, together, operate to prevent the railroads from doing what any well managed enterprise should be free to do; namely, accumulate a surplus in prosperous years to tide over periods of depression. But even the return provided for in the law has not been accorded the railroads."

Although the data, the collection of which is recommended in this paper, would not enable us definitely to allocate the responsibility for deficient maintenance as between carrier managements and the law to which the latter are subject, it would give us a reasonably satisfactory measure of the excess or deficiency of locomotive maintenance, and would provide the basis for a constructive policy designed to minimize the effect of cyclical fluctuations in traffic and earnings upon this important branch of railway expenditure. These considerations would seem amply to justify the collection and use of the data in question by the Interstate Commerce Commission. A measure of the adequacy of the maintenance of railway cars could possibly be developed on the model of that here suggested for locomotives.

testimony of Commissioner Eastman on H. R. 7116 and 7117 (*Congressional Record*, p. 446, 72nd Congress, 1st Session).

## Apartment House Bonds: Some Plans For Reorganizing Defaulted Issues

By CARRIE MAUDE JONES

**T**HE real estate mortgage bond as an instrument of finance has had a relatively short career<sup>1</sup> but in its brief history has attained an important position, especially during the last 10 years.<sup>2</sup> After a period of success, these bonds recommended themselves as useful instruments for financing many of the large building schemes of the post-war boom. Now, with many of these issues in default in payment of principal and interest, it is pertinent to analyze the circumstances and terms of some of these bonds and more particularly the plans which have been formulated for reorganizing the financial structure of the buildings they cover. The effect of these reorganization plans upon the security holders and the owners of the various properties comprises the subject of this study.

The situation in Cook County, Illinois affords ample materials for such a study, for in the last six years it is estimated that \$1,866,816,000 worth of real property has been involved in foreclosure proceedings. Of this amount a considerable proportion consists of apartment buildings and apartment hotels of one kind or another. The samples used in this study have been drawn from properties of these types.

Two lines of action are being followed in attempting to place these distressed buildings on a paying basis: one involves direct negotiation with the bondholders,

the junior interests, and the equity holders; the other calls for foreclosure. Both methods are found in the cases examined here.

Early attempts at reorganizations brought forth a wide variety of plans. As these were tested by the experience of the passing months, some have been found acceptable to bondholders; others were unsatisfactory and were abandoned. At the present time the methods being adopted seem to be following certain fairly well defined lines, which are described and criticised in the following pages. Fifteen reorganization plans have been studied in detail. In passing judgment on these reorganizations, particular attention has been paid to the interest of the bondholder, with some consideration of the equity holders. In the criticisms of the several plans emphasis has been laid primarily upon the more important elements, such as the nature of the new instrument issued, the distribution of future income, insertion of a new debt, retirement of the principal, and the liabilities of the security holders. Thus, the study is concerned principally with the economic aspects of the plans and only those legal phases which affect economic interests have been included. The plans are classified according to the character of the instrument given to the bondholder after he has deposited his first mortgage bond and reorganization has taken place.

Before taking up these several plans in detail, however, it is pertinent to glance at some of the factors which have

<sup>1</sup> It is said to have originated about 30 years ago in Chicago.

<sup>2</sup> From 1921 to 1931, \$4,661,919,000 worth of these bonds were issued in the United States.

contributed to the present situation and to describe the chief medium through which reorganizations have been effected—namely, the much discussed bondholders' committee.

#### *A Glance at the Causes*

What are the contributing factors behind the present unfortunate situation? Why should interest have been defaulted and principal payments unpaid? Why cannot the borrowers make good their obligations? What has happened to the apartment buildings securing these loans?

*Faulty Appraising.* Probably an outstanding cause of the trouble may be found in the appraisals upon which the loans were based. Three types of appraisers were responsible for the valuations placed on these buildings.<sup>3</sup> "Convenience appraisers" agreed to place any valuation desired on the property, providing the reward was liberal enough. Other appraisers simply did not have sufficient knowledge of the fundamental theories and concepts of property valuation. Still others, while sound in their methods, honest in their opinions, and accurate in their estimation of value for that particular time, yet failed to foresee what might happen in a period of severe depression.

Even some of the methods used in the appraisal of these buildings were wrong. Some appraisers took the selling value of the land separately and added to it the actual cost of the building. Others computed the expected earning power of the project on the basis of peak rentals. Income was also estimated on leases which had already been executed but which were made to tenants of questionable credit for amounts in excess of their ability to pay. Also too much confidence

was sometimes placed in appraisals based on the cost per cubic foot of construction and not enough emphasis on the amount of net income which the property could earn. Errors were made in estimating operating expenses which often turned out to be much higher than anticipated. Loans maturing years hence were made on the basis of an anticipated continued rise in values.

*Unsound Lending Practices.* Before the middle of 1929 mortgages were floated on inflated values with little or no equity. Excessive loans were secured with the expectation of covering maturities through heavy amortization provisions, which later acted as boomerangs against the safety of the loan itself. Two figures of value were commonly used: one on the circular distributed to the public, and the other a confidential figure for use of the bond house. There was stiff competition among the bond houses and consequently borrowers shopped around from house to house, going where they could strike the best bargain. The artificial bolstering of issues by a few bond houses which advanced interest and principal before deposit by mortgagors soon spelled disaster for a few companies and led to the deflection of money set aside for new projects to make up shortages on completed structures.<sup>4</sup> Another policy which reacted unfortunately for the bond houses was that of educating the public to a belief and an expectation that the house would always buy back the bond at par under any conditions and at any time for resale. Bond houses also showed poor judgment in the selection of borrowers. Strict requirements as to character were not demanded.

*The Building Situation.* The existing oversupply of space in Chicago, resulting

<sup>3</sup> See Kuehnle, Walter R., "Sound Appraisals or Foreclosures," *Chicago Real Estate Magazine*, January 24, 1931, pp. 7-13.

<sup>4</sup> H. D. Pettibone, "Status of Mortgage Bonds," *Chicago Real Estate Magazine*, October 25, 1930, pp. 5-8.

from overbuilding of units and the doubling up of families because of unemployment and stagnant business conditions, has also been responsible for the embarrassment of apartment buildings. In addition, a whole group of related factors have operated sometimes singly and sometimes with other factors to cause the financial downfall of individual buildings. These include reduction in rents, concessions, poor management, inability to refinance, new untried projects, rapid depreciation and obsolescence, increased taxation, unsuitable location, poor layouts, inadequate equipment, and changing districts.

In addition to the factors already mentioned several others have contributed to an already serious condition. Because of the shaky position of many bond houses, borrowers were afraid to deposit principal and interest which they had available to meet maturities; they feared that the funds might never be delivered to the bondholders. Abnormal construction brought into the field a large number of mortgage loan operators, many of whom had inadequate capital and no background of experience, training, or ideas of successful operation.<sup>5</sup> Another element contributing to the downfall of the mortgage bond was the ignorance of the buyers themselves. They bought bonds on blind faith; on the strength of a description in an attractive circular with a picture of a fine looking building on the cover.

The factors which have been cited here, while not an exhaustive list and not treated in detail, will suffice to indicate the nature of the conditions which have caused such a holocaust among real estate mortgage bonds.

<sup>5</sup> Sidney Middleton, "Real Estate Mortgage Problem," *Chicago Real Estate Magazine*, August 30, 1930, pp. 15-20.

### *Bondholders' Committees*

When a building is unable to meet its obligations, the trustee cannot adequately represent the interests of the bondholders according to present practices. Legally the trustee is given the right to take possession of the property for the bondholders, to foreclose, and to acquire it for their benefit. He may also manage the building or arrange for a skilled manager to exercise these duties for him. In actual practice, however, this procedure is open to question at every step. The holders of junior liens and the bondholders may question the propriety of every move and the legality of every expenditure. The powers of the trust deed are not specific enough to cover many of the difficult situations which arise upon default. Surety companies consider the risk so great that they hesitate to bond trustees.<sup>6</sup>

For obvious reasons neither the underwriting house nor the owners are the ones to assume the responsibility. Their interests are likely to be opposed to those of the bondholders. A plan calling for all the bondholders working together is not ordinarily feasible since they are usually numerous, widely scattered geographically, and totally unacquainted with each other. Moreover, they are often of limited intelligence and experience in matters of investment.

Consequently, the instrumentality which has proved most available is the bondholders' committee. Bondholders' committees were originally composed of those individuals who actually held bonds of a certain issue. Such committees contained investors who were not well known, who had no experience in investment procedure, and were not fitted by training to serve in this capa-

<sup>6</sup> H. D. Pettibone, "Real Estate Financing," *Sky-scraper Management*, April, 1931, p. 5.



city. They were often biased in their decisions and were unable to meet the situation with clear and constructive thinking. A change has occurred in recent years and now committees are frequently formed of persons who do not own any of the defaulted bonds. Well known men of character, knowledge, ability, and honesty are valuable assets to such committees. The underwriting house should also be represented, since it has all data on the building and its financing and also usually possesses the only available list of the holders of the bonds. In addition, the underwriting house sometimes has some of its own money in the project which has been advanced in anticipation of deposits to be made by the equity holder. The experience of bondholders' committees has shown that the reorganization work is benefited to some extent by the continued cooperation of the underwriting house. Prominent bankers and trust men, realtors, large owners of real estate, property managers, and loan specialists have proved to be most valuable in the work of these committees. It is also most important to have among the members an attorney specializing in real estate law.

As soon as a committee is created, officers, attorneys, and a depository are chosen; agreements are drawn up; circulars giving information on the property and its financial condition are sent to the bondholders; a reorganization plan is formulated which may or may not require foreclosure proceedings; proper management is arranged for; agreements are made with equity holders and junior interests; income is collected;

operating expenses are paid and disbursements are made to bondholders when sufficient revenue is derived. In past years the few spasmodic efforts made by the Federal Government and by state legislatures to control the activities of these committees have been ineffective. The passage of the Federal Securities Act of 1933, however, indicates active supervision of all reorganization plans by the Federal Government.<sup>7</sup>

In October, 1929, the first large real estate bondholders' committee was formed in the Chicago area.<sup>8</sup> During the past four years hundreds of such committees have been formed and are now functioning. The committees have been confronted with a difficult task. The public to whom they have had to appeal for cooperation has been somewhat chary in extending this cooperation, partly because of ignorance of the situation, of the methods of procedure, and of the aims of the committees, and partly because of dishonest practices on the part of some of these groups.<sup>9</sup>

#### *Analysis of Reorganization Plans*

The materials of this study consist of the reorganization plans for 15 separate properties,<sup>10</sup> which may be conveniently classified into five groups, based upon the type of instrument used in the reorganization. The first group of plans refinances with cash payments to the bondholders. The second type provides for readjustments of principal and interest. In both of these types bondholders may retain their original securities. In the third type, new bonds of different varieties are issued to the

not included as a part of this discussion.

<sup>7</sup> C. R. Edmister, "Bond Committee Restricted," *Real Estate*, September 30, 1933, pp. 15-21.

<sup>8</sup> H. D. Pettibone, "Real Estate Financing," *Sky-scraper Management*, April, 1931, p. 5.

<sup>9</sup> The performance of these committees is a subject in itself about which much has been written, but it is

<sup>10</sup> The data concerning these 15 properties were secured from bondholders' committees, trustees, managers, underwriting houses, equity holders and bondholders. The identity of these sources, however, is confidential since the information was secured upon this pledge.



original bondholders. The fourth type involves the issuance of stock, voting trust certificates, or participation certificates. The last type provides for the formation of a trust which takes title to the property and issues its own obligations.

All these plans are summarized in Table I, which also gives certain additional data about the individual properties not touched upon in the text. \*

*Group I. Plans Providing for Cash Payment to the Bondholders*

The apartment building (Plan No.1) which illustrates the first type of reorganization consists of 45 furnished and unfurnished apartments and six stores. The original bond issue was for \$165,000, which represented 66% of the appraised value of the property (\$250,000) as stated on the sales circular. In the years 1928 and 1929 the principal was reduced materially, and the building did not experience difficulties until the final maturity date when the balance of the principal was due. The reason for the trouble seemed to be the forced reduction in rentals resulting from general economic conditions. The property was well managed and well rented. When the bank took possession, only two apartments were vacant. Taxes were reasonable.

After default, the trust company which sold the issue volunteered to act without compensation for the bondholders, thus eliminating the need for a committee. The trust company also assumed complete control of the property, including management and collection of all rents, with the full approval of the owners and second mortgage holders.<sup>11</sup>

<sup>11</sup> An agreement was made with the owner to continue as agent of the property, since his management had been quite satisfactory. He was placed under a fidelity bond and was also under the supervision of the trustee.

With \$123,900 in bonds on deposit,<sup>12</sup> a new loan for \$112,000 was made with an insurance company at 6% interest for a period of 10 years. The old bond issue was subordinated to the new loan. The proceeds of this new loan were distributed on July 28, 1931, first to the holders of bonds falling due on the final maturity date, and second to those holding subordinated bonds.<sup>13</sup> In the actual distribution of the money, \$75.80 was paid on each \$100 bond and was so endorsed thereon. The balance was not cancelled but continues as a lien against the property at 6½%. It was expected that this remaining \$24.20 would be paid from the income of the building within a period of two years but rentals have decreased to such an extent that further payments have thus far been impossible. In fact, the income during the past year has been barely sufficient to pay operating expenses and taxes. According to past earnings of the property, an estimate indicates that seven or eight years will be required to pay off the original bondholders. Money was deposited with the trustee to take care of the \$2,000 in bonds not deposited, plus interest to date of maturity.

This plan is as near a perfect solution of a defaulted bond issue as it is possible to find. This method may be used when the issue is small; when no conditions in the trust deed preclude such procedure, providing the property warrants complete refinancing; but only when the income at the time of reorganization and its prospects for the future justify this

<sup>12</sup> All but \$2,000 of the bonds outstanding were deposited, representing an unusually small percentage of bonds withheld.

<sup>13</sup> The trust company held a number of bonds as security for principal and interest advanced to bondholders. The interest on these bonds was subordinated until a later date. An agreement was made with the holder of the second mortgage to delay action until the obligations to the first mortgage bondholders had been entirely met.

responsibility. The plan calls for complete cooperation on the part of all interests concerned—the bondholders, the equity holders, and the junior interests—and this united approval is extremely difficult to secure. The main obstacle to the use of this method would be the difficulty of securing a new loan of such magnitude. The property in question was extremely fortunate in this respect.

*Critique.* From the standpoint of the bondholders, the plan is unusually favorable, for they have received 75% of their investment, which is an exceptionally large cash payment. Plans which include a cash disbursement of any amount, even as small as 10%, have the strongest appeal to bondholders. In actual purchasing power, the recipient of \$75 now has nearly as much as \$100 would have given him when he bought this bond, and he still has the indefinite promise that the remaining \$24.20 may eventually be paid—a promise which may or may not be fulfilled.

The security of the bondholders, while subordinated to the new loan, remains the same—a mortgage bond. Their security continues to rest on tangible real property; they have not exchanged their bonds for other instruments backed by intangible assets. However, in buying these bonds originally they received definite promises to pay at a specified time and the obligations of the contract have therefore been repudiated. Moreover, under the original plan the entire amount of their bonds was a first lien upon the property. Another loan has now been inserted ahead of the \$24.20 still due them. Bondholders are receiving the same rate of interest on the unliquidated balance of \$24.20 as on their original bonds.

<sup>14</sup> There is also a junior mortgage securing \$177,000 in notes, maturing serially.

The equity holder still retains his equity in the property and he has secured a longer period in which to pay his obligation, and that at a lower rate of interest. This means an annual reduction in the interest charges of \$1,463.50, but even so the total cost to the owner may be greater than formerly because the period of the loan has been extended. After the bondholders are paid out, the property reverts to the original owner but he has lost financial control of the property in the meantime, although he continues to manage it under the supervision of the trustee. This, of course, is decidedly advantageous to his interests.

#### *Group II. Readjustment of Principal and Interest*

The property which illustrates this type of reorganization scheme (Plan No. 3) is a 12-story, modern, fireproof apartment hotel consisting of 242 rooms and 4 stores. It was owned and operated by a building corporation and is eight years old. The amount of the first mortgage was \$900,000 of which \$117,000 was paid off, leaving \$783,000 outstanding at the time of default. Of this amount \$72,000 was subordinated to the second mortgage, leaving \$711,000 originally designed to mature in semi-annual payments.<sup>14</sup> At the present time a receiver is managing the property.

The reasons for the financial difficulties of this building are apparently the common ones: an oversupply of apartment hotel space in Chicago, with the resulting high percentage of vacancy;<sup>15</sup> declining rents and the difficulties of renting the higher priced rooms; and the general business situation.

The plan which was worked out to avoid cessation of interest payments

<sup>15</sup> Average occupancy during 1932 was about 79%, while at present this figure has dropped further to only 60%.

TABLE I. SUMMARY OF REORGANIZATION PLANS OF

ITEM	GROUP I	Group II			GROUP II	
	Refinancing	Extension of Maturity	Extension of Maturity and Reduction of Interest	Extension of Maturity and Reduction of Interest	Two New Bonds	Three Classes of Bonds
	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Size of Building	45 Apartments 108 Rooms	42 Apartments 138 Rooms	242 Rooms 4 Stores	100 Apartment (Cooperative Bldg.)	360 Units Cooperative and Hotel	Apartment Hotel and Annex
Assessed Value, 1931	\$ 83,556	\$105,188	\$559,799	\$1,078,528	\$1,101,173	
Amount of Original Loan	\$165,000	\$160,000	\$900,000	\$1,700,000	\$3,724,000	\$4,000,000
Bonds Outstanding at Reorganization	\$125,900	\$125,000	\$783,000	\$1,660,000	\$3,700,000	\$4,000,000
Net Income per Year at Reorganization*	\$10,000-14,000	\$ 15,750	\$37,951 (1930)		\$148,613	\$74,819.39
Bond Issue Requirements on Original Set-up	\$ 16,500	\$ 8,750 (Interest only)	\$ 82,215	\$150,400 (1931-approximate)	\$144,000	\$260,000 (Interest only)
Date of Original Issue	May 15, 1924	Aug. 20, 1924	Mar. 15, 1923	1928	June 1, 1926	June 1, 192 Mar. 1, 1925
Original Final Maturity Date	May 15, 1931	Aug. 20, 1931	Mar. 1, 1935	1939		June 1, 1938 April 1, 1935
Date of Default	May 15, 1931	Aug. 20, 1931	1931	Jan., 1931	Dec. 1, 1930	1929
Nature of Default	Maturity	Maturity	Principal and Interest	Principal and Interest	Principal and Interest	Principal and Interest
Original Form of Organization	Individual	Individual	Corporation	Corporation	Corporation	Corporation
New Form of Organization	Individual	Individual	Corporation	Corporation	Corporation	New Corporation
Instrument Used in Reorganization	Same Bond	New First Mortgage Bond	Same Bond or Collateral Trust Certificates	Same Bond or Collateral Trust Certificates	1-15-Year 5% Bond (60%); 1-30-Year 2 1/4-3 1/2% Bond (40%)	Class A Bond Class B Bond Class C Bond
Bondholders' Committee Used	No	Yes	Yes	Yes	Yes	Yes
Percentage of Bonds Deposited	99%	100%	88%	97%	91%	97%
Foreclosure Used	No	No	No	No	Yes	Yes
Interest (Old Rate)	6 1/4%	7%	6 1/4%	6 1/4%	6 1/4%	6 1/4%
Interest (New Rate)		7%	4 1/4%	4 1/4%	15-Year Bonds 5% 30-Year Bonds 2 1/4-3 1/2%	Class A-6% Class B-5-6% Class C-4-6% after 2 Years
Principal Adjustment		5-Year Extension	15-Year Extension	15-Year Extension	15-30 Year Extension	
Retirement Provisions		Amortization at Full Value	Sinking Fund; Emergency Fund	Corporate Fund; Refunding Fund	Sinking Fund	A-Amortised B-Sinking fund C-Sinking fund
Cash Distribution	\$75.80; \$24.20 in 2 Years	None	None	None	None	None
New Loan Used	\$112,000 (6%)	None	None	None	None	\$500,000 (A Bonds)
New Securities Issued	None	Yes	None	None	None	Yes
Plan Now Operating	Yes	Building Sold	Yes	Yes	No	Yes

\*Taxes deducted, but not principal or interest.

## 365

[illegible]



and the consequent foreclosure proceedings included: a reduction of the interest rate from  $6\frac{1}{2}\%$  to  $4\frac{1}{2}\%$ ;<sup>16</sup> the postponement of principal payments for 15 years; and the creation of a compulsory sinking fund and an emergency reserve fund.<sup>17</sup> The emergency reserve fund is to be expended only under the direction of the building corporation and an independent agency selected by the bondholders' committee.

Holders of certificates of deposit are entitled to: (1) return of their respective bonds properly stamped or endorsed with original coupons replaced by new ones correcting the rate of interest, or in lieu thereof the old coupons appropriately stamped or endorsed; or (2) collateral trust notes or other new securities of the same amount as the bonds deposited.

This method, like all others, must be carefully checked with the trust deed in order that it may be legal in every detail. The income must also be satisfactory at the present time and should give promise of warranting this procedure in future years. Under this method the original first mortgage remains; the interest rate is reduced 2%; the annual payments of principal are temporarily eliminated; and the indebtedness is spread over a greater number of years.

*Critique.* Plans which provide for a simple adjustment of principal and interest have considerable merit in that the bondholder still retains his first mortgage bond backed by the property itself. His status is thus exactly the same as when he bought his first bond. But his security was originally a promise

to pay on a certain date which has been broken. Instead of receiving the face value of his bonds when they become due, he has to wait. Furthermore, he will lose 2% interest a year, with some possible compensation in the provision in the supplemental indenture which reinstates the interest at  $6\frac{1}{2}\%$  in case of another default.

Bondholders also benefit by the creation of the two sinking funds, one to protect their security by collecting funds for major expenditures and the other to take care of retirements of outstanding bonds. But, judging from present income, very little will remain out of earnings for these funds. Interests of the bondholders in the expenditure of the emergency reserve fund are well protected by their right to appoint an independent agency to cooperate with the building corporation. In addition, the sinking fund may provide a potential market for those who wish to sell or to offer their bonds at market price. However, a plan which may permit some bondholders to part with their bonds at less than they paid for them, while others may receive their full investment and the equity holder retains his interests, is antagonistic to the basic conception of a first mortgage. In addition, instead of a definite maturity date, bonds may be retired through the sinking fund by lot. This is, of course, a disadvantage to those wanting their investments to mature at a definite time.

Equity holders find this plan most agreeable, since they retain their interest, although their responsibility is now extended over a much longer period of time; and they are given every

<sup>16</sup> In case of future default the interest rate is reinstated at  $6\frac{1}{2}\%$ .

<sup>17</sup> One-half of the net profits after reserves for interest, taxes, and other operating expenses have been deducted goes to the sinking fund for retiring bonds. Bonds are retired by purchase or selected for redemp-

tion by lot. The other half of the net profits goes to the emergency reserve fund for possible increases in taxes and other emergencies. When this latter fund reaches \$35,000, all net profits are deposited in the sinking fund for retirement of bonds.



incentive to succeed with their investment. They also receive immediate relief in a 2% reduction in their annual interest rate, although the total cost over the entire period may be more. The absence of fixed serial maturities keeps the issue from going into default as soon as net income falls below a certain predetermined amount and yet allows the issue to be retired as rapidly as earnings permit. The bonds will be retired faster since they can be bought at the market price rather than at their face value. The reduction in interest is in line with the present movement toward scaling down mortgage requirements but a fixed rate of interest has again been established. In case the building cannot earn it, the issue will once more be in default.

In using such a plan as this, the physical and economic life of the building must be taken into account or this remedy will be but temporary and the

future will bring great difficulties. It may work satisfactorily with some buildings, but it is not a panacea for all buildings which are in need of resuscitation.

Plan 4 which is practically identical with the one just described has also been used in reorganizing a \$2,500,000 co-operative apartment building. Plan 2 differs essentially from the plan just described in (a) adjustment of maturity date only; (b) no specific funds are set up for future payments; (c) new first mortgage bonds are used; (d) interest remains at the same rate.

The second installment of this article will conclude the discussion with an analysis of the three remaining groups of reorganization plans—namely, those which employ new types of bonds in the reorganization scheme, those which use a variety of securities, and those which provide for the formation of a trust.

# The Transportation of Government Property and Troops over Land-Grant Railroads

By NORRIS KENNY

**I**T is not generally known that the Federal Government receives rate concessions over thousands of miles of railway routes. Approximately \$2,500,000 represents the annual savings over the commercial tariffs from this source in the transportation of property and troops and an equal amount in the carriage of the mails. These concessions arose out of the land-grant policy of the Government in aid of railroads beginning in 1850 and ending in 1871. In a measure they operate as continuing charges upon some railroads in partial compensation for public lands granted to them at that time. Non-land-grant, competing routes have had to meet the reductions in order to retain government business.

In this paper it is proposed to examine the content of the provisions which condition the transportation of government property and troops over land-grant routes and to measure what their effect has been. The carriage of the mails at reduced rates is a somewhat separate story not to be considered here.

## *Introduction*

The land-grant policy of the Federal Government in aid of railroads is largely an historical incident. Between 1850 and 1866 Congress passed numerous acts by which the public land states were entitled to receive enormous tracts of federal lands for the purpose of aiding railroad construction along specified

routes. Under these acts some 38,000,000 acres have been received by private railroad corporations designated by the grantee states. Between 1862 and 1871, under another series of acts, Congress provided for even larger grants of land to pass directly to railroad companies. Approximately 94,000,000 acres have been acquired by the roads so favored.<sup>1</sup>

In addition to the above grants, thousands of acres of federal lands have been donated to railroads for rights-of-way through the public domain. Portions of various other land grants, made by the Federal Government to the states, have eventually found their way into railroad hands by gift. For example, the internal improvement grants, authorized in 1841, were used in whole or in part by some states in aid of railroad development.<sup>2</sup> Probably over 175,000,000 acres have been devoted by the Federal Government, the states, and their subdivisions to the furtherance of railroad construction.

Undoubtedly these great donations affected the economic development of the West and South and had a profound influence upon political affairs in the nation. Even today certain grants in the far West are not finally adjusted and constitute problems of administration. In addition to hang-over administrative problems, the land-grant policy in aid of railroads has a present-day significance in two important respects.

<sup>1</sup> Because some of the western grants are as yet not finally adjusted, the total amount of the donation is only approximate.

<sup>2</sup> Certain states, especially Texas, owned land that did not come directly by grant from the Federal Government. Portions of these lands were used to promote railroad construction.

In the first place, railroad corporations today own "grant lands" which, in one way or another, are income producing. Thousands of acres of these grants are used for carrier purposes and are classified as carrier lands. Therefore they are valued for rate-making purposes at market value and upon this value the roads are entitled to earn a fair return if possible. For some roads carrier lands of this type are of importance. For example, Mr. Eastman of the Interstate Commerce Commission stated that the 60,000 acres of carrier grant lands of the Santa Fe were valued at almost \$10,000,000 in 1916.<sup>3</sup>

A few western roads hold enormous acreages of non-carrier grant lands which produce a certain amount of non-operating income. Many of these lands are of little worth; others contain valuable timber and mineral resources. The Santa Fe, for example, at the end of 1927 owned approximately 3,400,000 acres situated largely in New Mexico and Arizona.<sup>4</sup>

Railroad ownership of these tracts of land has often been the charge which set off prolonged and heated arguments. The attacks upon government subsidies to inland waterways which compete with railroads have been countered by pointing to the grant policy in aid of railroad construction.<sup>5</sup> The roads, in turn, contend that the gifts they received were of little value to the giver and, in many cases, were of little actual aid to them in construction.<sup>6</sup> These problems will not concern us here.

The second way in which the land-

grant policy in aid of railroads concerns the transportation problems of today is in the existence and operative force of the provisions in many of the grant acts which reserved to the Government the right to use grantee railroads as highways free of charge and/or to have its property and troops transported over them without payment or at reduced rates.

The situation created by these provisions in the grant acts has provided a basis for the contention that the grants were not donations pure and simple. A bargain was struck between the railroads and the Government.

"They [the grants] can affect the transportation cost today and in the future only favorably to the government, because in this clear-cut trade between the United States and the railways the government no longer gives but continues to take."

The quotation not only emphasizes the contention that the land grants were a consideration, in part at least, for a reduction in rates but also raises certain controversial questions as to the relative values parted with by the Government on the one hand and by the roads on the other. One of the tangible weights to be used in any settlement of the controversy is the loss in revenue to the railroads or, to put it conversely, the savings in transportation charges to the Government. This factor may be determined and may be used in any balancing of the benefits and of the detriments arising out of the land-grant

<sup>3</sup> 127 I. C. C. 118. Apparently only a portion of these lands constitute direct federal grants. Probably the remaining lands are largely grants from the states.

<sup>4</sup> Return to Valuation Order No. 25, Bureau of Valuation, Interstate Commerce Commission.

<sup>5</sup> Hurley, Patrick J., A speech before the Mississippi Valley Association on the inland waterways program, 44 *New York Times* 2 (November 25, 1930); "Deeper

Rivers: The Mid-West is Getting Them," 4 *Fortune* 39-40 (October, 1931).

<sup>6</sup> Whitridge, Horatio L., "A New Era for the Railroads," 90 *Railway Age* 437-8 and 494-6 (February 28 and March 7, 1931); Duncan, C. S., for the Association of Railway Executives, "On Land Grant Rates and Fares," Washington, 1930; Baldwin, W. W., *Congressional Record*, pp. 1431-4 (January 13, 1920).

<sup>7</sup> Duncan, *op. cit.*, pp. 5-6.

policy either from the point of view of the railroads or from that of the Government.

*Provisions in Grant Acts Conditioning the Transportation of Government Property and Troops*

The provisions in the land-grant acts conditioning the transportation of government property and troops by the aided roads fall into four distinct groups. The provisions in three of these groups have caused little controversy as to their interpretations but, at the same time, affect only a few roads. The other provision, first incorporated in the Act of 1850 by which lands were granted to Illinois, Alabama, and Mississippi, conditions transportation over the greater portion of the land-grant mileage. Because it was taken bodily from prior acts by which lands were granted largely for canal purposes, its interpretation has been difficult. Although the reservation is found in a number of the early canal and other internal-improvement grant acts, it was never applied in practice. The inherent differences in the two methods of transportation led to controversy over its application to railroads. This "free toll" provision is quoted from the Illinois act of 1850. The routes subject to its application will be called "free toll-public highway" lines.

" . . . and the said railroad and branches shall be and remain a public highway, for the use of the Government of the United States, free from toll or other charge, upon the transportation of any property or troops of the United States."<sup>9</sup>

This provision, practically in its original form quoted here, was incorporated in all grant acts passed prior to May 12, 1864, except the Union Pacific Act of

1862. It was incorporated, also, in a few of the later acts but because of other provisions which went beyond its application it had no force there. Today, some 8,300 miles of road are subject to the operation of the provision declaring the railroads to be public highways free from toll upon the transportation of Government property and troops.

The second provision declares that the railroads shall transport federal property and troops at their own expense. The term "free land-grant" will be used to designate such routes.

" . . . and the same shall at all times be transported at the cost, charge, and expense in all respects of the company or corporation . . . ."<sup>10</sup>

This provision was sharply differentiated at the time the courts held that the "free toll" and "public highway" clauses in the first provision could not be interpreted to mean more than the mere use of the roadbed free of charge by the Government.<sup>10</sup>

This second condition was originally incorporated in only two acts under which roads were built in Minnesota, Oregon, and California.<sup>11</sup> In several other instances the provision is found in acts supplementary to the original grant acts. Certain lines of the New York Central System in Michigan, portions of the Missouri, Kansas, & Texas in Kansas, the Rock Island in Arkansas, and the Missouri Pacific in Missouri and Arkansas come under this classification.<sup>12</sup> Today only 926 miles of line in Minnesota, Michigan, and Kansas are free land-grant routes. The remainder of the free mileage has been transferred by congressional action to the 50% classification, as will be indicated later.

<sup>9</sup> 9 Stat. 466.

<sup>10</sup> 14 Stat. 87.

<sup>11</sup> See p. 372 *infra*.

<sup>12</sup> 14 Stat. 87; 14 Stat. 239.

<sup>13</sup> 13 Stat. 339 (amended by 14 Stat. 289); 14 Stat. 78; 14 Stat. 289; 14 Stat. 338. In the last two statutes the clause reads that transportation shall be at the cost of the company when so required by the Government.

The third type of reservation conditioning government transportation declares that it shall be "... subject to such regulation as Congress may impose restricting the charges for such government transportation."<sup>13</sup> Of the routes operating under this condition the transcontinental line of the Northern Pacific is the most important.<sup>14</sup> Then, also, portions of the routes of the Santa Fe, St. Louis-San Francisco, and Southern Pacific, which were constructed under the grant act applying originally to the Atlantic & Pacific Railroad, are subject to this provision.<sup>15</sup> Finally, a portion of the Southern Pacific, built under the Texas Pacific grant, is included.<sup>16</sup> Altogether some 3,800 miles are classified in this manner today. Over them the rates for the transportation of Government property and troops have been established by Congress on the same percentage basis as applies to the "free toll" roads.

Finally, we have that class of land-grant railroads over which Government transportation enjoys no special rate reductions. This situation is the result either of the absence of specific reservations in the grant acts or of the incorporation of clauses declaring that the rates should be reasonable and, in any case, not more than those charged private individuals. The Union Pacific, with its branches and connections, is the principal railway of this type.<sup>17</sup> In addition, roads built under grants originally extended to the Oregon Central<sup>18</sup> and to the State of Kansas<sup>19</sup> are included. The railroads which were aided by grants under the Union Pacific acts were re-

quired to extend equal facilities to the Government and to the public and to operate their roads and telegraph systems as one continuous line for such transportation. In certain acts<sup>20</sup> the reservation was made that the Government should be extended a preference in service over the lines constructed under their provisions. It may be mentioned, also, that the Government, under statutory authority, has withheld part of the carrying charges owed to bond-aided roads.<sup>21</sup> Today all charges over 100 miles of the Missouri Pacific in Kansas are withheld and applied to the payment of the bonds and interest.

Table I indicates the status of the land-grant railroads today with respect to mileage and rates.

TABLE I. PRESENT STATUS OF LAND-GRANT RAILROADS\*

Classification	Percentage of Full Rate Paid by Government	Mileage
Free toll-public highway.....	50%	8,145.14
Free land-grant.....	0	926.98
Free land-grant reclassified by Congress.....	50	1,353.82
Regulated by Congress.....	50	3,839.61
Full rate.....	100	3,572.26
Total.....		17,837.81
Bond aided.....	0	100.00

\*Computed from data contained in "Schedule of Land-Grant and Bond-Aided Railroads of the United States," Circular No. 4, Office of the Quartermaster General, pp. 33-31, February 1, 1922, and in "Statement showing Land Grants made by Congress to aid in the construction of Railroads, Wagon Roads, Canals and Internal Improvements," compiled from General Land Office records by order of the Secretary of the Interior, 1915. Adjustments were made by the writer for changes in status subsequent to 1922.

<sup>18</sup> 16 Stat. 94.

<sup>19</sup> 14 Stat. 210.

<sup>20</sup> 14 Stat. 210; 16 Stat. 573.

<sup>21</sup> Under the Union Pacific Act of 1864 this road, its branches, and connections were loaned the proceeds from the sale of United States bonds which were secured by a second lien upon the property of the roads.

<sup>13</sup> 13 Stat. 365.

<sup>14</sup> 13 Stat. 365.

<sup>15</sup> 14 Stat. 292.

<sup>16</sup> 16 Stat. 573.

<sup>17</sup> 12 Stat. 499; 13 Stat. 356.



*Interpretation and Modification of the Provisions Conditioning the Transportation of Government Property and Troops*

The provisions of the grant acts conditioning the transportation of Government property and troops had to be interpreted and applied administratively. Two of them, one of which required transportation wholly at the expense of the railroads and the other carriage at rates no different from those applicable to ordinary freight and personnel, did not need much definition. The more important provision, containing the "public highway" and "free toll" clauses, was more difficult of interpretation.

In 1861<sup>22</sup> an act of Congress placed the transportation of military property and troops under the control and supervision of the Secretary of War. At this time the mileage of land-grant roads was comparatively small, the Illinois Central being the most important route. This road placed itself immediately on the outbreak of the Civil War at the disposal of the Government with compensation to be arranged later.<sup>23</sup>

Under the authority of the Act of 1861 the War Department allowed the "free toll" roads two cents a mile for passenger traffic and reasonable rates, less 33⅓%, for freight. We find, however, that the rates over several routes were not affected. Such was the situation in Missouri along the Hannibal & St. Joseph and the Pacific Railroads. It was felt that reduced rates would work a hardship on these routes because of the destruction of their property by southern sympathizers.<sup>24</sup>

<sup>22</sup> 12 Stat. 334.

<sup>23</sup> Murphy, H. K., "The Northern Railroads and the Civil War," 5 *Mississippi Valley Historical Review* 324-38 (December, 1918).

<sup>24</sup> 12 Stat. 614.

After March 1, 1867 a change was made in the rates applicable to military transportation. The War Department established rates uniformly 33⅓% below those paid by the public in general. In the meantime there had been some agitation in Congress to secure free transportation over the land-grant routes.<sup>25</sup>

In 1874 Congress acted. In the Army Appropriation Act of that year<sup>26</sup> it was provided that no payments should be made for transportation of property or troops not only over the "free toll-public highway" roads but over the other land-grant routes as well. In the next appropriation act Congress retracted in part and declared that this prohibition should not apply to roads the grant acts of which had provided for payments at the same rates as charged the public in general.<sup>27</sup> The two acts are incorporated in the code today but the former, because of subsequent interpretation and modification, is ineffective when applied to the "free toll" routes.<sup>28</sup>

The railroads were permitted by the Act of 1874 to test the congressional interpretation of the "free toll-public highway" reservation to mean carriage free of all charges. The Supreme Court reversed<sup>29</sup> the Court of Claims in its dismissal of the suits brought by the roads against the Government.<sup>30</sup> The clause in dispute was interpreted by the higher court in the light of historical facts. The term "public highway," it was held, could not be construed to embrace rolling stock or other personal property or

<sup>25</sup> *Congressional Globe*, pp. 890, 1387, 38th Cong., 3d sess.

<sup>26</sup> 18 Stat. 72, 74.

<sup>27</sup> 18 Stat. 452, 453.

<sup>28</sup> United States Code, Title 10, Sec. 1376.

<sup>29</sup> *Lake Superior and Mississippi Railroad Company v. United States*, and *Atchison, Topeka and Santa Fe Railroad Company v. United States*, 93 U. S. 442 (1876).

<sup>30</sup> 10 Ct. Cl. 607; 11 Ct. Cl. 776.

services. Then "free toll" could only signify a gratuitous use of the roadbed and could not be extended to cover all transportation charges. In other words, a separation of the functions of the railroad was implied by this interpretation.

By adjudication in the Court of Claims the railroads recovered 66 $\frac{2}{3}$ % of the transportation charges withheld by the Government under the Army Appropriation Act of 1874.<sup>31</sup> In 1879 Congress again noted and declared that future payments should not exceed 50% of the ordinary rates until a final judicial determination of the matter was had.<sup>32</sup>

In 1892 Congress definitely declared that this 50% allowance should apply to those roads the rates over which were subject to its will as well as to the larger class of "free toll" carriers.<sup>33</sup> The requirement that the rates for Government transportation shall be those deemed just by the Secretary of War, with a maximum of 50% of the ordinary tariffs, has been consistently incorporated in appropriation acts. Today this requirement regulates the payment for such carriage over two classes of land-grant railways, that is the "free toll-public highway" type and the class whose rates may be fixed by Congress.<sup>34</sup>

The interpretation by the Supreme Court in 1876 of the "public highway" clause to mean a separation of the function of ownership from that of common carrier needs further explanation. If the contention had prevailed that the term "public highway" included rolling

stock as well as roadbed, Government property and troops might now be transported over 8,000 miles of "free toll" routes absolutely free of all charges instead of being subject to a 50% rate.<sup>35</sup> The opposite contention was adopted but the view that a charge for the use of the roadbed only should be computed for each individual route was rejected.<sup>36</sup> More than a mere definition of terms was involved. The intent of Congress in incorporating the "public highway" and "free toll" clauses in the grant acts must be sought. The Supreme Court decision of 1876 and expressions of Congress will be examined for the purpose of throwing light upon this matter.

The majority of the Supreme Court (five members) based the decision upon the following points:

1. The early railroad charters separated the ownership function from the carrier function and provided that tolls might be collected from persons transporting their goods over the roadbed in their own equipment.
2. Previous grants by Congress in aid of canals and turnpikes contained the reservation as to "free toll" over these public highways. (It may be mentioned also that the Internal Improvement Act of 1841 contained the same condition and classified railways with canals and other internal improvement works of which a separation of functions was characteristic.)
3. The War Department had recognized the difference and, from 1861 to 1874, had deducted only 33 $\frac{1}{3}$ % from the ordinary rates.
4. Congress had not acted upon the suggestion made in 1865 that the Illinois Cen-

<sup>31</sup> 12 Ct. Cl. 295. Attempts were made to determine the exact relation of the function of owner to that of carrier. As usual in such cases, experts were hopelessly divergent in their estimates. The difficulty which lay in the distinctive characteristics of the several roads was recognized and an algebraic formula was devised to establish a percentage relation. Nevertheless, the Court based its decision upon the previous agreement between the War Department and the carriers under which a deduction of 33 $\frac{1}{3}$ % had been made.

<sup>32</sup> 20 Stat. 390.

<sup>33</sup> 27 Stat. 174.

<sup>34</sup> United States Code, Title 10, Sec. 1375.

<sup>35</sup> It is conceivable that Congress would have continued to classify similarly the 3,800 miles of road over which it had the power to set rates. On the other hand, relief might have been extended as was done for certain free land-grant routes.

<sup>36</sup> 12 Ct. Cl. 295, 303.

tral, a "free toll" road, be required to transport Government property and troops free of charge.

The minority of the Court (four members) contended that, in practice, no separation of functions existed in the railroads at the time of the passage of the first grant act in 1850 and that, therefore, Congress could not have intended to create this distinction artificially. It further argued that the term "toll," under both common and statutory law, was not confined to a description of charges for the right of passage but had been applied to payments for services as well. In any case the qualification "or other charge" in the acts should tend to make flexible any strict definition of "toll." Finally, an act of Congress, passed during the Civil War in relief of the railroads in Missouri,<sup>37</sup> indicated that "free toll," as Congress interpreted it, meant transportation at no charge whatsoever.

Haney, in his *Congressional History of Railways*, holds that the interpretation of the majority of the Supreme Court was contrary to existing fact in 1850 and thereafter.<sup>38</sup> He states that all distinction in function had disappeared and believes that Congress intended to mean free transportation. In his opinion little thought had been given to this phase of the land-grant policy and, consequently, the customary phrases were used in the acts. It was not foreseen that they might be subject to conflicting interpretations. We may go to the debates in Congress in an attempt to discover its intent despite the fact that such debates, at times, are not adequate grounds upon which to base an opinion.<sup>39</sup>

The disputed reservation had been incorporated in various proposed land-grant bills prior to 1850. For example, a proposed bill to grant lands to Michigan for a canal and railroad contained the "free toll" provision.<sup>40</sup> Then an amendment to a bill extending a grant to Mississippi in aid of railways contained the reservation that troops and munitions "shall be transported along the said road free of charge."<sup>41</sup> In Senator Douglas' bill of 1847, which would have extended a grant to Illinois, the right of the Government to transport troops and munitions of war was expressly reserved.<sup>42</sup>

The debates in Congress do not throw much light on possible interpretations of the proposed provisions affecting Government transportation. It may be said that Senator Douglas consistently opposed the inclusion in the grant acts of provisions for the free carriage of mails.<sup>43</sup> Whether his stand in this matter has any bearing upon free carriage of property and troops is problematical. The debates on the Illinois bill of 1850 throw a little more light on the subject. This bill, at its second reading in the Senate, provided that troops and munitions should be transported "free of all charges."<sup>44</sup> The substitute bill, recommended by the Committee on Public Lands and adopted by Congress, changed the provision to the "free toll-public highway" wording.<sup>45</sup> The term "munitions" was dropped and "property" substituted. There is no discussion as to the meaning of the new section or the reason for its adoption.

<sup>39</sup> See 166 U. S. 290 (1897).

<sup>40</sup> *Congressional Globe*, pp. 742-7, 29th Cong., 1st sess.

<sup>41</sup> *Ibid.*, p. 761, 29th Cong., 1st sess.

<sup>42</sup> *Ibid.*, p. 723, 30th Cong., 1st sess.

<sup>43</sup> *Ibid.*, pp. 742-7, 29th Cong., 1st sess.; also p. 1241, 31st Cong., 1st sess.

<sup>44</sup> *Ibid.*, p. 844, 31st Cong., 1st sess.

<sup>45</sup> *Ibid.*, p. 844, 31st Cong., 1st sess.

<sup>37</sup> 12 Stat. 614.

<sup>38</sup> Haney, L. M., "Congressional History of Railways in the United States, 1850 to 1887", p. 36. (*Bulletin of the University of Wisconsin*, No. 342, Economics and Political Science Series, Vol. 6, No. 1, Madison, 1908.)

In a debate in 1852 upon at least one of the several proposed railroad grant bills, Senator Geyer of Missouri evidently assumed that free transportation was provided for. He estimated the annual cost to the Government of the transportation of troops and supplies, capitalized this amount, and stated that it equalled the proceeds from 26 million acres of land at \$1.25 per acre. His statement follows:

"Any appropriation of that quantity of land in aid of railroads, upon the terms proposed by the bill under consideration, would secure to the United States the free transportation of their troops and property in peace and in war forever over 7,400 miles of railroad, without the investment or expenditure of a dollar, but with an actual gain to the Treasury, the land yielding more than it would produce if sold."<sup>46</sup>

With the evidence at hand it seems reasonable to conclude that the question of the separation of the functions of the railroads did not enter the minds of Congressmen. Therefore the actual conditions of transportation at the time the acts were passed should govern. However, the Supreme Court has decided otherwise, although by a mere five-to-four majority.

The interpretation of the "public highway" and "free toll" provisions of the grant acts and the determination of the rates to be paid for Government transportation over these "free toll-public highway" routes and the lines compelled to carry at such charges as might be allowed them, as we have seen, had been problems to be settled by the courts and Congress. In addition, the

status of the "free land-grant" routes has undergone considerable change. In 1899 there were over 2,300 miles of road over which Government property and troops were transported free of charge;<sup>47</sup> today only 926 miles in three states are so situated.<sup>48</sup> In 1917 the free land-grant portions of the Missouri Pacific and the Rock Island in Missouri and Arkansas were temporarily changed to a 50% basis.<sup>49</sup> Because of the War the burden of Government transportation had become heavy. It was felt that there should be more adequate compensation than the past benefits derived from the land grants. The Transportation Act of 1920 made this change permanent.<sup>50</sup>

In 1928 the Roseville Junction-Portland line of the Southern Pacific became a 50% route.<sup>51</sup> In the hearings on the bill it was stated that the loss to the road in gross revenue from Government transportation was \$500,000 annually. To August 31, 1927 the total loss had been almost \$13,000,000. For the Oregon portion of the line it was stated that the land grant had brought in net receipts of over \$5,000,000, while the loss chargeable to Government transportation had been around \$7,000,000. The railroad did not make a similar estimate for its California lands, although it declared that the unsold portion of the grant, about one-half of the total, was of small value. In the valuation proceedings under the Act of 1913 these unsold lands were allotted an estimated value of \$12,000,000. For an immediate cash sale the estimate was over \$7,000,000.<sup>52</sup>

changed to a 50% basis after the above circular was issued; consequently this mileage has been deducted here.

<sup>46</sup> 40 Stat. 361.

<sup>47</sup> 41 Stat. 456, sec. 208 c.

<sup>48</sup> 45 Stat. 722.

<sup>49</sup> Accounting Report of the Southern Pacific as of June 30, 1916, Bureau of Valuation, Interstate Commerce Commission.

<sup>50</sup> *Ibid.*, App. pp. 327-35, 32nd Cong., 1st sess.

<sup>51</sup> "Regulations Governing Military Transportation over Land-Grant and Bonded Railroads . . .," Gen. Orders No. 140, of 1899, Adjutant General's Office, pp. 22-6 (1899).

<sup>52</sup> "Schedule of Land-Grant and Bond-Aided Railroads of the United States . . .," *op. cit.*, pp. 32-5 (1922). The Roseville Junction-Portland route was



Between 1916 (the valuation date) and 1927 some lands had been sold. In any event the road will have received more from the grant than the losses amount to.

Evidence tended to show, however, that this portion of the Southern Pacific System was not especially profitable and over it the burden of Government transportation was unusually heavy because it was the only line between California and the Northwest. Transcontinental freight was routed over this line to take advantage of the 50% rate over the Northern Pacific to the East. For these reasons the change in status was held to be justified.

The remaining free land-grant routes are comparatively short and, because of their location, do not carry great amounts of property for the Government. They are parts of large systems and the loss is more easily absorbed. Nevertheless, there seems to be little reason to discriminate against them in view of the fact that relief has been extended to the other free routes.

It will be remembered that the reservations in the grant acts included within their scope the "property and troops" of the Government. The term "troops" is construed to mean the enlisted and commissioned personnel of the three branches (the Army, Navy, and Marine Corps) but does not embrace such personnel when not on duty. "Property" has more than a military significance. All property of the Government comes under the classification and is subject to the reduced rates. Needless to say, many disputes have arisen as to what shall be included under the term and as to the exact time that ownership becomes vested in the Government.

<sup>53</sup> "Schedule of Land-Grant and Bond-Aided Railroads of the United States," Circular 4, February 1, 1922, Office of the Quartermaster General, War Department; "Freight Land-Grant Equalization Agreements," Circular No. 3, May 20, 1929, Office of the

The War Department is charged with the administration of the laws relating to transportation over land-grant routes. The base on which the 50% deduction is computed is the published tariffs under the general jurisdiction of the Interstate Commerce Commission. The Quartermaster General of the Army issues bulletins showing the land-grant routes, the existing equalization agreements, and the percentages to be deducted between termini. The other governmental departments follow these rules.<sup>53</sup>

#### *The Present Status of the 50% and Free Land-Grant Mileage*

The several railroads and the mileages over which the transportation of Government property and troops is subject to reduced rates are shown in Table II. Controlled operating companies are indented under the parent system. The mileage figures for each road do not necessarily indicate a continuous route of that length but embrace, sometimes, several widely separated portions of the railway.

A map published by the Quartermaster General's Office indicates the lines over which Government property and troops are carried at reduced rates (Map I). Several routes are important links in through traffic channels. The east and west roads through Iowa, the Illinois Central south from Chicago, and the transcontinental Northern Pacific are examples. On the other hand, many routes carry largely local traffic only and are not of importance to the Government in transportation.

It must not be assumed that the routes so far described are the only ones along which reduced rates apply. Under

Quartermaster General, War Department; Supplement No. 1, to Circular No. 3, April 26, 1932; "Land-Grant Percentages," Circular No. 5, October 1, 1929, Office of the Quartermaster General, War Department.



TABLE II. MILEAGES OF LAND-GRANT RAILROADS TO WHICH RATE CONCESSIONS APPLY\*

Railroad	State	Mileage	Percentage of Full Rate Paid by Government
Atchison, Topeka & Santa Fe .....	Kansas, New Mexico, Arizona, California.....	1,367.38	50%
Atlantic Coast Line			
Louisville & Nashville.....	Alabama, Florida.....	507.00	50
Nashville, Chattanooga & St. Louis .....	Alabama.....	20.00	50
Canadian National			
Grand Trunk Western.....	Michigan.....	60.00	50
Canadian Pacific			
Duluth, South Shore & Atlantic .....	Michigan.....	63.00	50
Minneapolis, St. Paul & Sault Ste. Marie .....	Wisconsin.....	257.00	50
Chesapeake & Ohio			
Pere Marquette.....	Michigan.....	170.66	50
Chicago & North Western.....	Iowa, Minnesota, Michigan, Wisconsin, South Dakota.....	838.62	50
Chicago, St. Paul, Minneapolis & Omaha .....	Wisconsin, Minnesota, Iowa.....	657.97	50
Chicago, Burlington & Quincy.....	Iowa, Missouri.....	486.38	50
Chicago, Milwaukee, St. Paul & Pacific.....	Minnesota, Iowa, Michigan.....	380.38	50
	Minnesota.....	481.47	Free
Chicago, Rock Island & Pacific .....	Iowa, Arkansas.....	448.75	50
Great Northern.....	Minnesota.....	599.71	50
Illinois Central.....	Illinois, Iowa.....	1,034.31	50
Central of Georgia.....	Alabama.....	84.00	50
Gulf & Ship Island.....	Mississippi.....	40.00	50
Yazoo & Mississippi Valley (Alabama & Vicksburg—96 miles in Mississippi) (Vicksburg, Shreveport & Pacific—170 miles in Louisiana).....	Mississippi, Louisiana.....	266.00	50
Missouri-Kansas-Texas.....	Kansas.....	125.77	Free
Missouri-Kansas-Texas of Texas. (Line leased from Vicksburg, Shreveport & Pacific).....	Louisiana.....	20.00	50
Missouri Pacific (St. Louis, Iron Mountain & Southern—559.66 miles in Missouri and Arkansas).....	Missouri, Arkansas.....	596.66	50
New York Central.....	Michigan.....	60.00	Free
Michigan Central.....	Michigan.....	259.74	Free
Northern Pacific.....	Wisconsin, Minnesota, North Dakota, Montana, Idaho, Washington, Oregon.....	2,362.46	50
Pennsylvania			
Grand Rapids & Indiana.....	Michigan.....	278.00	50
St. Louis-San Francisco.....	Missouri.....	291.30	50
Seaboard Air Line.....	Florida.....	521.00	50
Southern.....	Alabama.....	145.00	50
Alabama Great Southern.....	Alabama.....	244.94	50
Mobile & Ohio.....	Mississippi, Alabama.....	333.28	50
Southern Pacific.....	California, Oregon.....	1,264.77	50
Total.....		14,265.55	

\*See note to Table I *supra* and Map I.

equalization agreements with the Government many competing routes carry Government property at the same rates as do strictly land-grant roads. In general, carriers in Trunk Line and New England territories do not participate in these agreements. Many of the routes in other territories, when not in direct competition with land-grant routes, are not parties to these agreements.<sup>54</sup> The exact mileage of the equalization routes cannot be stated because the agreements are conditional depending upon the origin and destination of the freight and upon other qualifying factors. The rates along a certain route may be equalized with land-grant rates for a specific shipment and not so equalized for another.

The railroads complain that the equalization situation has been forced upon them. The agreements are voluntary

and undoubtedly the companies consider a 50% rate preferable to an almost total loss of this type of freight. In any case, from the broader view of public policy, the distribution of the burden of transporting Government property over more systems and mileage seems desirable.

#### *The Accrued and Annual Amounts of the Rate Reductions*

The administrative and the judicial interpretations of the provisions pertaining to government transportation over land-grant railroads have varied from time to time. Congressional action in this matter has shifted during the period since the grants were made. Consequently no uniformity is found throughout the years in the percentage amounts of the deductions for the carriage of property and troops. Furthermore, many of the records of the railroads have been lost or are inadequate to furnish satisfactory information. For a few

<sup>54</sup> "Freight Land-Grant Equalization Agreements," Circular No. 3, May 20, 1929, Office of the Quartermaster General, War Department.



roads only may fairly representative data be had. The Government has kept no record of the amount of such deductions. Possibly some approximate amount could be built up from the vouchers representing payments of transportation charges but this process would require months of labor.

In this section an attempt will be made to approximate the present annual deductions from the commercial charges which otherwise would apply to the carriage of Government property and troops and to submit available information as to past deductions.

Under the Valuation Act of 1913 each railroad was required to report the amounts of such deductions as of valuation date. The results are presented in Table III.

Table III demonstrates the impossibility of attempting to arrive at some figure which would approximate the total deductions for the carriage of Government property and troops. For only a few routes, as for the Illinois Central in the State of Illinois, is this information even fairly complete.

Then there are the deductions arising out of equalization agreements. Certain land-grant roads have definitely included them; in other cases no information is at hand as to whether they are included or not. Many other routes participate in the agreements but the deductions chargeable to them are not known.

Since the valuation dates some available information has been made public as to concessions in rates. Under Valuation Order No. 25 of the Interstate Commerce Commission the roads are re-

quired to bring the valuation statistics as to lands up to date. In only a few instances, however, have any complete compilations been made. For example, the Santa Fe reported passenger and freight concessions of \$780,000 for the years 1923 to 1927 inclusive.<sup>55</sup> The average concession per mile of land-grant route has been somewhat over \$100 annually for this road. The concessions of the Southern Pacific from valuation date (July 1, 1916) to the end of 1927 have been approximately \$1,300,000. The average here is slightly under \$100 per mile annually.<sup>56</sup>

In 1930 the Association of Railway Executives completed a study of the cost of transportation over land-grant railroads for the preceding few years. By questionnaire the deductions for the carriage of Government property and troops for the years 1924 to 1928 inclusive were obtained from Class I roads representing 228,830.64 miles of a total of 240,429.41 for the class as a whole. These deductions applied not only to land-grant routes but also to those roads which met the lower rate through participation in equalization agreements. Table IV showing the amounts of the deductions is quoted from that study.<sup>57</sup>

The average deduction per year for the transportation of Government property and troops during the five-year period is, therefore, \$2,215,788.07. The average deduction per mile of road for all land-grant mileage over which concessions are in force is around \$150 annually.<sup>58</sup> It must be remembered that not all railroads submitted figures as to deductions. Whether or not such deductions applied over any of this mileage

<sup>55</sup> This figure does not include equalization concessions. It is an estimated amount based on actual figures for four months in each year.

<sup>56</sup> It is not known whether equalization concessions are included or not. One-half of the mileage was a free land-grant route during this period.

<sup>57</sup> Duncan, *op. cit.*, p. 3.

<sup>58</sup> Computed by dividing the total average deduction (including equalization) by mileage of land-grant routes only. The mileage of the routes which come under equalization agreements is variable.

TABLE III. ACCRUED DEDUCTIONS IN TRANSPORTATION CHARGES\*

Railroad	Period	Amount of Deductions	Remarks
Atchison, Topeka & Santa Fe.....	1879-1916 1882-1916	\$1,050,391.23† 1,762,879.52†	Kansas lines Coast lines
Atlantic Coast Line			
Louisville & Nashville.....			No information
Nashville, Chattanooga & St. Louis.....			No information
Canadian National			
Grand Trunk Western.....			No information
Canadian Pacific			
Duluth, South Shore & Atlantic.....			No information
Minneapolis, St. Paul & Sault Ste. Marie.....			No information
Chesapeake & Ohio			
Pere Marquette.....			No information
Chicago & North Western.....	1907-1917	606,059.15‡	
Chicago, St. Paul, Minneapolis & Omaha.....	-1917	97,993.01	
Chicago, Burlington & Quincy.....			No information
Chicago, Milwaukee, St. Paul & Pacific.....	1863-1918	1,580,955.09†	
Chicago, Rock Island & Pacific.....			No information
Great Northern.....	1889-1915 1896-1915	265,527.89 383,056.14	
Illinois Central.....	1855-1915 1874-1915	3,100,395.03† 26,366.54	Equalization Illinois lines Iowa lines Deductions on freight are for 1902-1915 only.
Central of Georgia.....			No information
Gulf & Ship Island.....			No information
Yazoo & Mississippi Valley (Alabama & Vicksburg; Vicksburg, Shreveport & Pacific).....			No information
Missouri-Kansas-Texas.....	1881-1891	63,002.21‡	Freight only
Missouri-Kansas-Texas of Texas.....			No information
Missouri Pacific.....		1,595,048.06‡	
(St. Louis, Iron Mountain & Southern).....			Included with Missouri Pacific
New York Central.....			No information
Michigan Central.....			No information
Northern Pacific.....	1882-1917	4,397,329.82§	Transcontinental lines
Pennsylvania	1874-1917	140,967.98†	Other lines.
Grand Rapids & Indiana.....		370,071.17†¶	
St. Louis-San Francisco.....		816,407.59	
Seaboard Air Line.....			No information
Southern.....			No information
Alabama Great Southern.....			No information
Mobile & Ohio.....			No information
Southern Pacific.....	1904-1916	2,448,050.14	

\*Final and Tentative Valuation Reports of the several roads, Bureau of Valuation, Interstate Commerce Commission. The supporting accounting records on file in the Bureau were examined also.

† Estimated in part.

‡ Does not represent the full amount of the deductions.

§ Estimated.

¶ Includes deductions for carriage of mail at reduced rates. Compound interest at 4% has been computed by the road but is not included in this figure.

is not stated in the study by Duncan. Furthermore, the concessions for the period 1924-1928 do not adequately show the results for abnormal periods such as 1917-1919. With all the facts in mind, a figure of \$2,500,000, as representative of the present average annual deductions for the carriage of Government property and troops, is a liberal estimate.<sup>59</sup> These annual concessions, if capitalized at 5%, amount to \$50,000,000.

TABLE IV. SUM REPRESENTING DIFFERENCE BETWEEN COMMERCIAL RATES AND GOVERNMENT RATES ACCOUNT LAND GRANTS.

	Freight	Passenger
1924.....	\$1,658,778.63	\$ 527,737.69
1925.....	1,787,733.48	492,913.04
1926.....	1,589,477.22	474,945.06
1927.....	1,714,624.91	632,149.95
1928.....	1,783,104.46	417,455.93
Totals....	8,533,738.70	2,545,201.67

#### *Future Status of Rate Concessions*

The problem arises as to the future status of the provisions concerning rate concessions. Specific recommendations are not made in this paper because only one factor upon which such recommendations should be based has been considered. At a later time, when the other aspects of the land-grant policy in aid of railroads have been dealt with, it is proposed to make such recommendations. Among other factors to be taken into account are the present values of the grant lands, the net income derived from royalties and leases, the net proceeds from lands disposed of, and the cost of acquisition of these lands to the present railroad corporations. As a general policy the writer believes that each land-grant road should be considered separately in deciding as to the future. It is believed that such a consideration will indicate that the concessions should be retained over most of the land-grant mileage.

<sup>59</sup> The annual amount of the deductions chargeable to the carriage of mail is as much more.

#### *Summary*

The special problems relating to the transportation of Government property and troops over land-grant railroads arose out of the provisions in the original grant acts or in other acts immediately supplementary to them. Four types of provisions may be ascertained in these acts. These clauses, when once adopted, were not self-regulatory nor were they possible of clear interpretation. Only through a series of administrative definitions, court interpretations, and congressional enactments have they received their present-day significance. Under these circumstances the mileages and routes over which property and troops are transported at reduced rates have varied somewhat throughout the years. Some routes have been expressly transferred by legislative action from the operation of one provision to that of another. As a result we find that today a rate of 50% of the commercial tariff is charged for the carriage of Government property and troops over about 13,500 miles of land-grant lines and that over 900 miles more no charge whatever can be made for this service. Over the remainder of the land-grant routes the rates for the Government are the same as for commercial traffic. Finally, there are many competing non-land-grant routes and, possibly a few full-charge land-grant routes, which have met the 50% deduction of their competitors through equalization agreements with the Government. Because of the concessions in rates applicable to land-grant routes and to those competing routes which have entered into equalization agreements the deductions to the Government approximate \$2,500,000 annually.<sup>60</sup>

<sup>60</sup> The total deductions from the time the concessions went into effect cannot be accurately determined.



# The Economics of Federal Reclamation

By WILLIAM MELCHER

FEDERAL reclamation of arid lands, under the Reclamation Act of 1902, has now been in operation 30 years. During this time 35 projects have been undertaken. Four of these have been abandoned; the others have been completed or are nearing completion and are furnishing water to the settlers. Not one of these projects has yet returned the entire cost of construction to the Federal Government as was provided in the Reclamation Act. Most of the projects are in arrears on payments, in spite of repeated amendments and the granting of special relief in the payment plan.

Considered from an engineering standpoint, very enduring structures which are most efficient in the distribution of water on these projects have been built. Although much desert land has been transformed into 42,568 irrigated farms, furnishing homes for 177,281 people,<sup>1</sup> still from its economic and social results reclamation has fallen far short of the highest aspirations of those who fathered the movement. Before the present depression, on only a very few of the projects were the people contented, while on many the conditions were far from satisfactory. The settlers have not found conditions as they expected them to be; they have complained of their heavy burdens and have repeatedly demanded relief measures from the Government.

The cause of these unsatisfactory conditions is to be found in the unsound policy of water distribution. The effort of the Government to attach the water to

the land and to force payment whether the land is farmed or not has been the fundamental weakness. While many other things have contributed to this weakness, the remedy is to be sought in a sound plan for water distribution. One possible remedy is the use of the rental plan for water distribution which, as will be shown subsequently, has been proved successful and could be used to replace the present unsatisfactory arrangement.

## *History of the Reclamation Act*

The Reclamation Act of June 17, 1902 provided that all funds arising from the sale of public lands in the arid states be set aside as a reclamation fund, excepting the 5% which should go to these states for public schools. The funds accruing from the sale of the lands were to be credited to the Interior Department and used for reclaiming the desert lands, with the provision that full payment of the construction costs was to be returned to the Federal Government by the settlers.

In addition to the funds accruing from sale of the public lands themselves there were added, by the act of 1917, the royalties and rentals from the sale of potassium on public lands. By the act of 1920, known as the "oil leasing act," the oil royalties and rentals were likewise added to these funds. Also by the act of 1920 further funds were to be derived from the Water Power Act providing for the leasing of lands for power purposes. Other acts have been passed naming other sources of funds to be added to these, but so far they have not been productive of the expected revenue.

<sup>1</sup>31st Annual Report, Commissioner of Reclamation, for the year ended June 30, 1932, p. 1.

Repayment according to the original act was to be spread over 10 years without interest. The avowed purpose of the act was the development of western lands and the provision of opportunities for citizens to obtain homes where they could support their families. The Government was carrying out its policy begun with the Homestead Act of 1862—namely, that of providing homes on the public lands. Members of Congress who urged the Reclamation Act thought that all that was necessary was to furnish water and the settlers would prosper as they had in the humid sections of the Middle West. They did not take into consideration other problems of a complex economic nature which might interfere with the success of such enterprises.

These problems have given rise to many amendments and interpretations of the Reclamation Act. In 1910 it was found that the funds were not accruing fast enough to rush to completion the projects under construction, so a loan of \$20,000,000 was made by Congress to the Reclamation Fund.

In 1914 when the announcement was made that the construction charges upon the projects then completed or nearing completion would begin, so many complaints arose from the water users that the time of repayment was prolonged from 10 to 20 years by the Extension Act, with the provision that all lands already subject to water charges under the act of 1902 should pay in 20 installments, the first four of which should be at the rate of 2%, the next two at the rate of 4% each, and the next 14 at the rate of 6% of the total construction charge or that portion of the construction charge unpaid at the beginning of such installments. All deferred pay-

ments were to bear no interest. The construction charges were to include all expenditures of the Federal Government in planning and building the irrigation plant, and the costs of operation and maintenance were to be the costs of the overhead and direct labor in the operation of the system, together with the upkeep and repairs of the plant.

About half of the projects began payment of the construction charges as soon as the water was delivered by the Reclamation Service or the next year after water was supplied. Others delayed for various reasons. On two of the projects repayment did not begin until 14 years after water was supplied.<sup>2</sup>

Complaints of various kinds caused delays and delinquencies in payments. With the depression of farm prices in 1921 and 1922 these came to a head in a general demand for relief from the charges as fixed by the Reclamation Service on a number of the projects. Conditions on many of these projects became so unsatisfactory because of these complaints and so many delinquencies in payments followed that the Secretary of the Interior on September 8, 1923 appointed a committee to study the whole situation and make recommendations as to changes needed to correct the existing conditions.<sup>3</sup> This Committee, known as the Fact Finders' Committee, began work in October, 1923, holding hearings in Washington, D. C. and later on many of the projects in the West.

A number of recommendations were made by this Committee, resulting in important changes in the reclamation laws, largely in the nature of relief and extension of the time of repayment. The Fact Finders' Report showed that a large acreage of land under the various

Ray P. Teele, *The Economics of Land Reclamation* (New York: McGraw-Hill Book Co., Inc., 1927), p. 74.

<sup>2</sup> Senate Document No. 92, Messages from the President of the United States, pp. 28-30.

projects was unsuited for farming and could not pay the costs assessed against it. Recommendation was made that these lands be returned to the Government and that the construction charges assessed against them be charged off the books. This sum has amounted to about \$14,000,000, which will never be repaid.<sup>4</sup> Other lands had become water-logged and were in need of drainage. These were temporarily suspended from the payment of construction charges, which amounted to about \$8,000,000 and which will be collected if these lands are drained and restored to a paying basis.

The *Report* also showed that the water users could not readily meet the payments in the 20 years as provided in the Extension Act, so the Act was amended to provide for the repayment of construction costs in 40 years without interest on deferred payments. No extensions granted at this time were to prolong the period of repayment beyond 40 years from the time the project began its payments. However, by the Act of December 5, 1924, a few projects were permitted to pay annually on the construction costs 5% of the average annual gross crop value over a period of 10 years.

The acceptance of the 40-year repayment plan was optional. Ten projects or divisions of projects never accepted the plan but are paying on a 20-year repayment basis. Sixteen projects are paying on the basis of 5% of the gross crop returns and their payments will range from 25 to 75 years. Two projects, Okanogan and Rio Grande, have special contracts.

On June 30, 1930 four projects were without deficits in the amounts due. A

few others were only a little in arrears, but many were 10% and more in arrears.<sup>5</sup>

In considering the difficulties which have been encountered in the efforts to make these various projects self-liquidating, it must not be forgotten that the Federal Government took up the work of reclamation after the easier projects had been built by private enterprise and in some instances even took over private works which were in financial straits. These difficulties and complaints were in a large part the result of a number of fallacies and mistakes in regard to reclamation. The principal ones include the following: construction costs were estimated too low; the cost of leveling and subduing the soil was not taken into account; the amount of land that would become water-logged and the necessity for a drainage system were not considered; many settlers were not suited to irrigation farming; there were delays in the delivery of water and the settlers could not remain until construction was completed; farmers did not cooperate with the Government in constructing delivery systems as the Reclamation Service had expected; expenses of operation and maintenance of the plant were estimated too low; costs of production of crops exceeded expectations; many had exaggerated ideas of the amount of crop return per acre; there was no method of controlling speculation in lands, which has hindered development.<sup>6</sup> Methods are now being employed on the newer projects to counteract this speculation.<sup>7</sup>

These and other difficulties have led to misunderstandings and conflicts between the water users and the Reclamation Service. The water users have

<sup>4</sup> Hearing before Committee on Irrigation, House of Representatives, March, 1926, p. 8.

<sup>5</sup> 21 *New Reclamation Era* 207 (1930).

<sup>6</sup> 12th *Annual Report*, Reclamation Service, p. 4.

<sup>7</sup> *Economic Survey of Certain Federal and Private Irrigation Projects*, (Washington: Bureau of Reclamation), p. 56.

quite generally maintained that the difficulties and failures of the projects have been caused by engineering errors and underestimates of costs. They can substantiate many of these accusations, such as the excess of construction costs over estimates,<sup>8</sup> and the inclusion in the projects and water contracts of lands which are lacking in fertility and cannot bear even the expense of preparation for irrigation. But the Reclamation Service, in turn, counters that the human element has been largely to blame; that farmers have expected the Government to do everything for them, and since all that the Government does must be charged to the land under the Reclamation Act, it is added to the farmers' costs; that the settlers are not suited to pioneering and to an irrigated region; that many farmers tried to subdue a new place without the necessary capital; that the costs of production have not been kept down; that the farmers are not producing the most profitable crops.

#### *Financial Arrangements*

Many of the difficulties and discouragements have arisen out of the complexities of the method of financing and the nature of the contract with the water users. These have been most severe on those projects which were partially settled and where the Federal Government came in to assist in the development of the irrigation system, particularly when private enterprises had failed.

When the Federal Government undertook the development of a system where the land to be watered was partially or wholly in private ownership, it required the owners of the land to form a water users' association, to be incorporated under the laws of the state as a stock

company. The number of shares of capital stock was to correspond to the estimated number of acres of land susceptible to irrigation. Before construction work was begun a certain percentage of the capital stock of the company was required to be subscribed and a contract signed with the water users' association. When the original amount of stock was subscribed, no more stock was issued even though more land might be available.

The fact that there was additional land to be irrigated and more water was available or, in some instances, could be made available led to the passage of the Warren Act, whereby the Federal Government is empowered to lease water to the owners of lands not included in the system.

The water users' associations were to carry on the transactions with their members under the direction of the Reclamation Service. When a sufficient number of shares of stock had been subscribed, then the water users' associations signed a joint liability contract with the Secretary of the Interior agreeing to repay the full costs of construction. A share of stock in the water users' association entitles the holder to the following: (1) a right to his proportionate part of all waters available for distribution by the association; (2) a right to have the water carried to the land to which the water is appurtenant; (3) a perpetual right to use the water on his land to which it is appurtenant, thus establishing united ownership of land and water.

A share of stock obligates the purchaser to pay his proportionate part of the total cost of construction of the irrigation system and also to pay annually his proportionate part of the operation and maintenance costs.

When a change in the plan of repay-

<sup>8</sup> 13th Annual Report, Reclamation Service, p. 18.



ment of the charges has been made, such as the plan based upon the percentage of the gross crop return or the optional 40-year plan, it has necessitated the signing of a new contract by each water user and a new contract between the association and the Government. If a change is made in the plan of incorporation, the approval of the state is also necessary.

In the early projects the settlers did not appreciate that they were signing to pay an indefinite amount for construction, and they did not comprehend the full significance of the joint liability nature of their contract with the Government. No soil surveys had been made and little was known of the comparative fertility of the soil, so that the owners of the land readily signed up their entire acreage with the exception of that portion which was not arable because of its uneven topography. Nor did they realize that they would begin to pay construction charges in proportion to the number of shares of stock held whether they used the water or not. They did not consider the fact that the construction and maintenance charges would be based upon their original estimates of the total acreage irrigable regardless of whether they farmed all or only a part of their lands. They did not foresee that lands might prove infertile and have to be abandoned, or become water-logged and therefore non-arable, or might even prove too expensive to subdue to irrigation and so have to be withdrawn, and that each unit abandoned would pyramid the construction charges upon the remaining lands, as well as increase the annual operation and maintenance costs on the remaining lands.

Under the joint liability contract pyramiding of costs results when for any reason lands are abandoned. For instance, on a project planned to irrigate

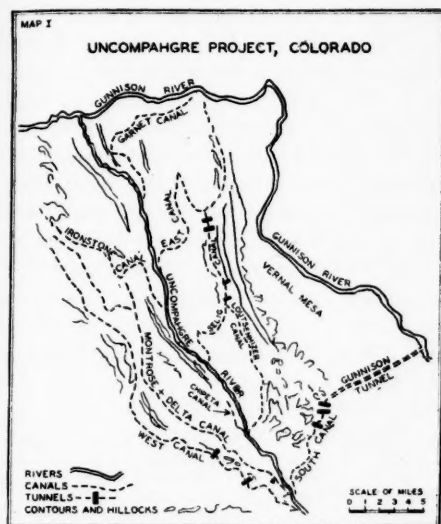
140,000 acres there would be 140,000 shares of stock, each share representing one acre. If the total construction costs were \$5,600,000 and the period of repayment 40 years, the total annual payment would be \$140,000, or one dollar per acre. Should half of the lands be abandoned and the payment of their proportionate part of the construction costs be discontinued, the owners of the remaining lands would have to assume and pay the total charge of \$140,000 per year. Since 70,000 acres must assume the total charge, the payment would be \$2.00 instead of \$1.00 per acre. Operation and maintenance charges would not be pyramided to the same extent as the construction charges because the expense of the upkeep on the ditches supplying these abandoned lands would be removed, but the total operation and maintenance charge on the whole system would not be reduced to the same degree. This is true because the irrigation plant would still have to be maintained and none of the overhead costs would be reduced.

The difficulties of collection have their basis in the above fundamental facts, and they have been intensified because the estimates of costs were generally too low and the time required for construction has been longer than planned. These problems were not so difficult of solution on the projects planned for the irrigation of lands still in the public domain. There the Government did not open the lands for settlement until it was ready to furnish water and the construction had proceeded far enough that its cost could be more accurately determined and the settlers would not have to wait for the water. However, the problems of the fertility of the soil, costs of subduing and water-logging have emerged as equally trying problems upon all projects.



### *The Uncompahgre Valley Project<sup>9</sup>*

The Uncompahgre Valley Reclamation Project (Map I) is typical of the situations where the lands were in private ownership when the Federal Government began work. This project was begun in 1903. The contract with the construction company called for completion of the work in April, 1908, but not until 1911 was water through the tunnel available for the entire season, and then only in limited amounts.



Many farmers had invested all the capital they had in clearing and leveling their lands, and were prepared to farm. Since the water was not available at the time promised, they were forced to leave their farms;<sup>10</sup> many went to other sections of the country. These lands fell into the hands of real estate agents who were indefatigable in their dissemination of advertising as soon as water was

available and who sold them to new settlers at high prices. This brought in settlers who did not understand conditions, were not suited for irrigation farming, and who soon were discouraged and withdrew. Thus speculation in the reverted project lands continued.<sup>11</sup>

The problems of the settlers were numerous. In addition to the many who could not wait for the completion of the tunnel and therefore withdrew, others found that the soil would not produce sufficient crops to pay the high costs of clearing and subduing, much less the original cost of the land, which because of speculation in many instances was very high. Raw land in many cases sold as high as \$30 to \$50 per acre, and in some cases sales as high as \$400 per acre were reported.<sup>12</sup> The prices of raw land plus water charges often exceeded \$100 per acre. The costs of subduing the soil would often exceed \$50 per acre, and in a few cases amounted to \$100 per acre. To these costs were to be added the construction costs which averaged in the earlier projects \$50 per acre.<sup>13</sup> In the case of the Uncompahgre Project these were announced as \$70 per acre in 1922. In addition to these costs there is an operation and maintenance charge varying greatly but ranging on the Uncompahgre from \$1.40 to \$1.80 per acre per year.

After the water had been applied to the upper lands and on the mesas some of the lower lands became water-logged. Farms in the lower fertile valley were abandoned because the water table was raised so near the surface that the alkaline content of the soil made crop production impossible. The abandonment of the lands because of water-logging

<sup>9</sup> The Uncompahgre Project is located in the western part of Colorado. The Uncompahgre is a branch of the Gunnison River, and the Gunnison forms one of the main tributaries of the Colorado River at Grand Junction, Colorado.

<sup>10</sup> 11th Annual Report, Reclamation Service, p. 8.

<sup>11</sup> *Economic Survey of Certain Federal and Private Irrigation Projects*, Hearings on Same, pp. 14-16.

<sup>12</sup> 13th Annual Report, Reclamation Service, p. 27.

<sup>13</sup> 20th Annual Report, Reclamation Service, p. 131.

and lack of fertility sufficient to warrant the high cost of preparing for irrigation added to the construction charges which the remaining lands must pay.

An additional difficulty encountered by the farmers was the frequent lack of a market. Large crops could be produced in some areas, it is true, but there was no market at prices which would repay the costs of production and yield the farmer necessary returns. Unlike farming in the humid regions, each year's crop called for an outlay of capital for construction costs and irrigation expenses as well as operation and maintenance costs.

The major complaints against the Reclamation Service by farmers on the Uncompahgre Project have been against the excessive construction costs. The project had been planned for a large acreage and now there is a much smaller paying acreage. The area which can be profitably irrigated amounts to less

than 100,000 acres, whereas more than 140,000 were included in the early estimates. Up to 1917 the Reclamation Service reported 140,000 acres irrigable. Then from 1917 to 1921, 100,000 acres were reported as irrigable. The next year the estimate fell below 100,000 acres and in 1926 it dropped to 94,820. Much less than this was actually irrigated and cropped. At no time did the number of acres cropped exceed 65,000 (Table I).

All these facts were presented to the Fact Finders' Committee in 1924 and a bill enacted by Congress in 1926 provided for writing off more than 25,000 acres and temporarily suspending 27,000 acres in addition. Authorization was also granted for the cancellation of about  $\frac{1}{2}$  of the cost of construction as a loss to the reclamation funds and the suspension of an additional amount of the construction costs for the temporarily suspended lands. This reduced the amount the remaining lands should pay to about

TABLE I. HISTORICAL REVIEW OF CONSTRUCTION, INCLUDING THE USE AND DUTY OF WATER ON THE UNCOMPAHGRE PROJECT, COLORADO\*

Year	Estimate of Irrigable Acres	Acres for which Service Is Prepared to Supply Water	Acreage Irrigated	Miles of Canal	Water Diverted (Acre Feet)	Water Delivered (Acre Feet)	Water Delivered per Acre of Land Irrigated (Acre Feet)
1909.....	140,000	20,600	16,500	117.5	73,988	73,988	4.50
1910.....	140,000	24,000	17,080	129.0	106,335	106,765	6.25
1911.....	140,000	30,000	20,995	131.0	112,708	113,789	5.44
1912.....	140,000	44,500	27,887	210.7	139,932	133,912	4.81
1913.....	140,000	48,000	31,428	228.5	182,191	160,056	5.09
1914.....	140,000	52,338	33,873	279.5	183,342	171,268	5.06
1915.....	140,000	62,147	41,463	255.8	264,060	231,271	5.56
1916.....	140,000	77,713	42,273	406.5	329,564	299,432	6.08
1917.....	100,000	90,000	53,108	415.0	368,148	316,365	5.96
1918.....	100,000	100,000	59,270	413.0	423,050	367,144	6.30
1919.....	100,000	100,000	60,906	442.0	420,176	390,770	6.42
1920.....	100,000	100,000	64,180	448.0	429,820	365,853	5.70
1921.....	100,000	97,410	63,760	432.0	446,225	415,599	6.52
1922.....	97,410	97,410	64,730	467.0	427,706	422,398	6.52
1923.....	97,410	97,060	64,320	489.0	439,452	328,877	5.11
1924.....	97,060	96,510	63,350	532.0	379,144	373,814	4.89
1925.....	96,510	94,819	61,637	532.2	430,701	298,035	4.89
1926.....	94,819	95,202	58,676	532.2	407,171	312,430	5.32
1927.....	94,820	75,784	59,378	532.2	422,052	274,670	4.63
1928.....	75,780	75,654	60,818	532.2	453,255	317,686	5.22
1929.....	75,630	67,001	60,522	532.2	390,301	254,421	4.20

\*Compiled from the Annual Reports, Reclamation Service.

\$52 per acre and fixed the total paying irrigable acreage at 75,784 acres. This charge-off and suspension have limited the ability to pyramid but have not prevented it because further abandonments of the remaining acreage are again pyramiding.

*Inadequate Surveys.* The construction work on all the early projects was undertaken without adequate soil surveys; not until 1910 was a soil survey made on the Uncompahgre. Had the soil survey been made earlier, probably not more than half of the 140,000 acres would have been designated for irrigation. Such a survey would also have shown: (1) that some of the lands would require much water to irrigate, too much, perhaps, to make them profitable for reclamation as arable lands; (2) that much of the land would become water-logged and a drainage system would have been planned and its cost made a part of the construction costs.

In the early construction of irrigation works little or no consideration was given to the varying amounts of water required to irrigate lands varying in texture. All lands covered by the construction works were included as lands subject to water for irrigation, and the charges per acre were the same for all. This has resulted in the abandonment of much land which was not suited to irrigation or which required too much water to be profitably irrigated. Much of the adobe soil of the Uncompahgre erodes seriously and has been cut by deep ravines and arroyos which make the cost of leveling prohibitive. All adobe soil erodes so easily that irrigation is difficult and expensive. Leveling is necessary each year and even after each heavy rain. The rains occurring in the foothills of the mountains often send a flood of water down the gulches and across the lands below. This has resulted in the

abandonment of that part of the adobe area having a great slope or receiving a flow of water from the foothills.

*Repayment Difficulties.* The years 1914 to 1918 marked a period of contention and unsettled relations between the water users and the Federal Government. No agreement could be reached as to construction costs and time of beginning payments. On May 7, 1918 the Reclamation Service entered into a special agreement with the Uncompahgre Water Users' Association to the effect that the Government would operate and maintain the project at cost for a period of five years and that on December 1, 1922 payment on construction would be due. When December, 1922 came, the depression was on and the farmers complained and asked for further relief. Many were delinquent in the payment of operation and maintenance charges. Relief was granted in the further postponement of these charges without penalty, but all without permanent results. It was then suggested that the settlers pay 5% of the gross crop value. Congress enacted the permissive legislation but it was never approved by the Water Users' Association, because the farmers would have paid more per year on this 5% basis than they were paying under the former agreement.

Following the Fact Finders' Report and the Congressional Act of May 25, 1926, the Uncompahgre Valley Water Users' Association accepted the 40-year plan of repayment and entered into a contract with the Federal Government on April 8, 1927. This provided for the charge-off of certain lands and the suspension of others and fixed the annual payments at \$1.25 per acre to continue to 1962, at which time the payment of construction costs would be completed. This contract was quite generally satisfactory, and the Water Users' Associa-

tion and the Federal Government seemed for a time to be on peaceable terms. But prices of farm crops continued to decline and the delinquencies in payments began to increase. This brought demands for additional relief.

Because of depressed conditions in the fall of 1929 and the failure of a bank on the Project during the winter of 1929-30, an urgent demand for immediate relief was begun. At the insistent request of the Water Users' Association a hearing of their complaints was granted by the Reclamation Service and held in Denver in February, 1930. Following this hearing, upon the recommendation of the Reclamation Service, Congress in the spring of 1930 passed a resolution permitting the farmers of the Uncompahgre Project, who were delinquent in their payments, to be furnished water for that season. A further recommendation provided that time be given to investigate the conditions and that permanent relief be considered later.

Immediately thereafter the Bureau of Reclamation requested the Governor of Colorado to appoint a committee of representative citizens of the State to make a study of the conditions and report to the Bureau of Reclamation. This commission was organized as a fact finding committee and began work in August, 1930, at which time the economic conditions of the Project were considered from many standpoints.

At these hearings it was suggested that the water users could not pay more than \$2.60 per acre annually, including both the construction charge and operation and maintenance costs. The charge for construction under the contract of 1927 was only \$1.25 per acre per year, and the operation and maintenance charges had never been more than \$1.80 per acre per year, making a total not exceeding \$3.05 per acre per year. It

was clear that the water users were fearing an increase of these charges under the joint liability clause of the contract because of the continued abandonment of farms.

*The Credit Situation.* At the conference in Denver in February, 1930 it was suggested that better credit facilities were needed and at lower rates of interest. At that time approximately 37,000 acres of land were mortgaged for a total of \$2,500,000, or an average of over \$70 per acre, and the average rate of interest was about 8%, resulting in an interest charge of more than \$5 per acre per year on these mortgaged lands.

The mortgage situation bears a close relationship to the income from the farms. If mortgages are given as a part of the purchase price of a farm or for stock and improvements on the farm, the conditions would not be so alarming but, if they are incurred for consumptive expenses because the farms were not producing a living for the farmers, conditions must be serious.

Sufficient data are not at hand to show conclusively what were the causes of these debts. The farmers' annual reports to the Reclamation Service on the value of live stock do not seem to indicate that the mortgages were for the purpose of enlarging herds. The writer is familiar enough with conditions on the project to know that few improvements were being made; more farms have deteriorated in improvements than have been bettered in recent years. Farm machinery has likewise depreciated and but little additional equipment has been purchased since the depression in 1921. The mortgages, however, might have arisen from loans connected with the transfer of property, but this does not seem to explain any considerable number of cases.

At the hearing in Montrose, Colorado



in August, 1930 figures were presented to show that few transfers of property were being made because of lack of credit facilities, and that this need for credit was bringing more foreclosures than on other lands in the same valley. It was reported that in the 12 months preceding the hearing only 64 deeds had been recorded upon the project lands, while for the same period 10 years earlier 414 were recorded; and that in the year just preceding, 67 mortgages had been filed whereas 10 years earlier 579 had been filed in one year. These few sales and few mortgages are not necessarily an indication of an unhealthy economic condition. It will be seen that the number of mortgages in the earlier period far exceeded the number of transfers. This might be an indication of a healthier economic condition at the later period.

The investigation also showed 29 foreclosures in 1929 as against 9 for the same period 10 years earlier. It was further stated that no one would lend money on the project lands, whereas lands situated similarly to the project lands, but not included in the project, could borrow \$50 and more per acre. The explanation was that there is no equity for a loan on the lands under the project because the Government holds a first lien and with the joint liability clause in the contract there is no limit to the acreage charge for construction. Bankers testified at this hearing that they could not lend upon the project lands so long as the joint liability holds. The joint liability contract was also said to be the cause of the high interest rates. This had been treated in the *Annual Report* of the Reclamation Service following the establishment of the Federal Farm Land Banks in 1916.<sup>14</sup>

However, it must be remembered that the credit situation is an economic condition accompanying the depression and is affecting land ownership relations throughout the entire country to a great extent; it is not a condition peculiar to the project lands alone, though, perhaps, it applies here in an exaggerated degree.

*Recent Remedial Legislation.* Following the hearing in Montrose and the report to the Bureau of Reclamation by the committee a bill was sponsored by the Reclamation Bureau and introduced in the House of Representatives on December 10, 1930, providing (1) that the drainage of the water-logged lands be undertaken by the Water Users' Association; (2) that an amount equal to the total amount due the Federal Government on the construction repayment might be spent annually on this drainage for a period of six years; and (3) that the payment of the construction charges due for these years might be suspended in lieu of this drainage expenditure and paid as supplementary charges after 1962. It also provided that, if lands were abandoned and costs pyramided, there should not be an increase of more than 15% in the amount of the annual construction charge, and that these excesses attributable to such abandonments might be suspended and paid as supplemental charges after 1962.

The bill was rushed through as an emergency measure and signed by the President on January 31, 1931. A new contract was signed by the Water Users' Association with the Department of the Interior. Following this the Water Users' Association suspended the collection of construction charges for 1931 and 1932.

The act also provided that the Water Users' Association should take over the project and operate and maintain it after 1932. This placed the Uncom-

<sup>14</sup> 16th *Annual Report*, Reclamation Service, p. 14.



pahgre Project in the class of projects operating under a special contract.

The engineering, economic, and social problems are being confused by politics. This comes about in part from the fact that the Reclamation Service is a government bureau, subject to Congressional legislation, and is not free to accommodate its activities to commercial transactions. The economics of a situation are often neglected for the political. This has been true upon the Uncompahgre Project. The factional situation has not permitted the affairs of the Water Users' Association to be handled on a strictly businesslike and economic basis. Political interest and expediency have at times taken precedence over the economic advantages of the water users. This has been an influence in preventing the water users from making a careful, scientific examination of the conditions and squarely facing the adjustment and solution of these problems.

#### *A Comparison of Federal Reclamation Farming with Other Farming*

A study of the statistics of crop production on the Uncompahgre Project has shown that the enterprise as a whole is far from prosperous. The conditions are not different from those on many of the other reclamation projects and upon other irrigated lands, but they are very different from conditions in the humid areas. The irrigation farmer on the federal reclamation projects is also in a different situation from the one under a private or corporate system of irrigation. He has a joint mortgage on his land for the construction costs of an expensive irrigation plant in addition to the upkeep or operation and maintenance of this plant. The plant as a rule has cost much more than the private or corporate plant. True, it is much better constructed, both from an engineering standpoint and in

the durability of its materials. The federal irrigation plants are models of careful engineering and have been built to endure. This, however, does not aid the farmer when his farming operations are not profitable and he would like to let his land lie idle or put it to some other use than cropping. The private system has usually cost less and is so planned that its operation and maintenance costs are small. They are very small if the farmer decides not to irrigate for one year. On the private project, if the land proves infertile or expensive to subdue, the owner may sell his water or the entire system, if individually owned, to farmers with lands better suited for irrigation. The farmer on the federal projects cannot sell or transfer the water to other lands. He is under contract with the Government to pay and must pay whether he uses the water or not. If he finds one year that he needs more water than his allotment calls for, he must pay for the excess even though he has not used his allotment in previous years. He is in a precarious position; if he does not prepare his land and use the water, he will lose the construction costs plus the operation and maintenance, while if he does prepare his land and does irrigate, he stands to lose upon the cost of production.

#### *Some One Must Lose under This Unsound System*

It seems that under present conditions either the farmer or the Federal Government must lose upon some of these poorer lands. If the farmers are held to their contracts regardless of the character of their lands, those farmers upon the poor soils must lose immediately, and under the joint liability contract the farmers upon the better lands may lose through the pyramiding of the construction costs as well as through increased

opera

It  
by a  
tion  
irrig  
excep  
have  
The  
the p  
work  
the C  
is th  
upon  
that  
the  
tion

T  
imp  
is ne  
Som  
own  
all  
wer  
diff  
of  
tho  
are  
not  
the  
wit  
cul  
fest  
but  
the  
val  
pro  
in  
and  
cov  
irri  
Ca  
irri  
it  
Th

nee  
191

operation and maintenance costs.

It was pointed out several years ago by authorities in engineering and irrigation that the investors in commercial irrigation systems had "almost without exception lost their investment—they have been involuntary philanthropists."<sup>15</sup> The Federal Government stands now in the position of the investor in irrigation works. The difference in the position of the Government and the private investor is that the Government has a prior lien upon the lands and it is a joint lien so that the entire project stands good for the return of the entire cost of construction of the irrigation plant.

The above statement might seem to imply that irrigation farming as a whole is not a success, but such is not the case. Some early projects and many privately owned projects have succeeded but of all the Government projects only four were not in arrears in 1930. The great difficulty lies in divorcing the ownership of the land and the water. Water, though very limited in most irrigated areas in comparison with land, is worth nothing unless applied to the land. On the other hand, the land is valueless without the water to irrigate it. A peculiar phenomenon of value is here manifested; the water is the limiting factor, but is valueless except as attached to the land, and then the land takes on a value through the application of water in proportion to its fertility. The increase in value is then attached to the land and not to the water. This was discovered by irrigation companies in the irrigation districts. For this reason the Carey Act did not meet the needs of an irrigated region, and was not applied as it was anticipated by its promoters. The irrigation companies could make no

profit from the sale of water to settlers.

The infertile lands continue to be abandoned rather than that these charges be met. Some of these lands were useful and may again be useful for grazing, but they cannot be forced into a higher use by the application of a tax. Lands are used as a rule when their use yields a return to the one who holds them, but they will not be used when it is seen that continued losses will result. Submarginal lands cannot be taxed into use.

The question arises, would more lands be farmed and would the relations of the farmers and the Government be more satisfactory if the water users on the projects were furnished water, as under the Warren Act, on a rental basis rather than on a cost of construction basis as at present? The question also arises, would the Federal Government lose less under this plan than it may lose under the present plan of postponements and charging off. The extension of the time of repayment without interest means a loss to the reclamation funds.

#### *A Proposal*

Inasmuch as no more lands are needed for the production of agricultural crops at the present time and since the tendency is and should be to abandon poorer soils and to use only lands of great fertility, it would seem feasible for the Federal Government to furnish the water on a rental basis on the reclamation projects which are having difficulties in meeting payments. This annual rental charge could be based upon what the more fertile lands of the project could bear and still be farmed at a profit. This rate of rental might be so adjusted according to the cost of construction that, after a certain number of annual rentals per acre had been paid, a permanent title to the water would be given to the farmer and he could use it on any

<sup>15</sup> Newell and Murphy, *Principles of Irrigation Engineering* (New York: McGraw-Hill Book Co., Inc., 1913), pp. 276-277.

lands he desired, subject only to the regulations of his own water users' association.

This would, perhaps, result in the immediate abandonment of some lands not now profitable to farm. It would undoubtedly remove all complaints arising from the joint liability contract. It would also result in more economical use of the water and perhaps reduce the acreage that is water-logged. Along with this there could be provisions for drainage by farms or districts with the privilege of using the waters developed by drainage ditches, thus practicing an economy in the use of water.

Under such a system the farmer would rent only the water needed, and would farm only productive lands. Water would be economically applied and better crops would result. There would be in the end, perhaps, more land farmed and farmed better than is now being farmed. Because of the great variation in the soils in some regions many farms might have but a few acres of very fertile land and these could be profitably cropped. Since the farmer would pay only for the water used, this plan would place upon him the responsibility of planning his crop wisely. He would not be under obligation to pay the Govern-

ment a fixed charge for waters appropriated to lands he had found unprofitable to crop.

This would also take care of the settlement problems. The lands then would be sold by the owner or, if abandoned and taxes become delinquent, they would revert to the county and be sold for taxes. Under such a plan, perhaps, fewer lands would be abandoned and if abandoned there would be a ready sale under a tax title, since the purchaser would realize that he would not have a charge for water except for the lands he farmed and those would be of his own selection.

Since the purpose of the Reclamation Act is to furnish homes where farmers can rear their families, the proposed plan would meet that requirement. It is conceivable that more lands would eventually be farmed and more water demanded and finally paid for under such a system than will be under the present plan of collection of the construction charges. Under the present arrangement the Federal Government has already charged off a considerable sum, and the prospects are that more will be charged off. The Government would lose less under this rental plan than under a plan that is unsound economically.

# I. The Development of Commission Regulation of Public Utilities in Ohio

By EDWIN T. HELLEBRANDT

AT the present time the District of Columbia and all the states, with the sole exception of Delaware, have some form of administrative commission regulating public utilities and railroads. The broad outlines of their history and general organization are quite similar, but each has its own characteristic development.

In many respects the Public Utilities Commission of Ohio has paralleled the general pattern while at the same time preserving certain unique characteristics. Its roots go back to the early years of the Granger Movement which culminated in the so-called Granger Legislation of the early 1870's. This was the period of the development of both the strong and weak types of commission.

*Commissioner of Railroads and Telegraphs, 1867-1906.* In 1867 the Ohio General Assembly created the office of a Commissioner of Railroads and Telegraphs, with the general powers of investigating and reporting to the Legislature, and of enforcing certain statutory rules. Thus Ohio began the regulation of her railroad and telegraph companies before the great wave of Granger legislation in the 70's. It was a weak type of commission; yet it had a continuous existence, with gradually increasing powers, until it was superseded in 1906 by the Railroad Commission of Ohio.

The more important duties and powers of the Railroad Commissioner were: (1) to submit an annual report to the governor, containing reports of all railroad and telegraph companies operating within the State, showing their physical, financial, and operating condition and all

casualties to persons and animals; in addition, the Commissioner was expected to submit any recommendations he might deem necessary to be made to the Legislature; (2) to enforce various specific railroad laws through court action and to collect any forfeitures due the State, either on his own motion or through the prosecuting attorney; (3) to examine any defective tracks, bridges, and structures of the railroads, and, if found to be dangerous to passenger service, to order the necessary repairs to be made, prescribe the speed of trains over them, or wholly prohibit their use by passenger trains.

The Commissioner could make examinations into violations of law by the companies, either on complaint or on his own motion, and in the conducting of such investigations subpoena witnesses and administer oaths. It is interesting to note this early grant of initiating powers to the Commissioner—it was not necessary to wait until a complaint was made; the Commissioner could act on his own initiative.

Beginning five years after the creation of this office, the Legislature gradually granted additional powers to the Commissioner. These pertained almost wholly to safety in operation, such as approval of mechanical devices, principally those installed to protect railroad and highway crossings, and the enforcement of such strictly defined laws as the full-crew and fire-extinguisher laws.

Funds were generally lacking for an effective use of even its limited powers, and legislative and political opposition on more than one occasion were almost



successful in their attempts to abolish the office. The railroad and telegraph companies made few efforts to cooperate and were generally very delinquent in filing their annual reports and in supplying information requested by the Commissioner. A continuous existence was maintained, however, until in 1906 a successor was created, the Railroad Commission of Ohio.

*Railroad Commission of Ohio, 1906-1911.* By 1906 it was uniformly felt that the needs of regulation had outgrown the powers conferred upon the Commissioner of Railroads and Telegraphs and that a general rewriting of the law was necessary. On January 1, 1906 an act, known as the Wurtz law, was passed " . . . to regulate railroads and common carriers in this state, create a board of Railroad Commissioners, prevent the imposition of unreasonable rates, prevent unjust discrimination, and insure an adequate railway service . . ."<sup>1</sup> This law, with the principal exception of the omission of any powers over joint railroad rates, was a replica of the then existing Wisconsin statute.

In addition to transferring the powers and duties of the former Commissioner of Railroads and Telegraphs to the newly formed Railroad Commission, its jurisdiction was extended in the following manner:

(1) The number of commissioners was increased to three, the term of office extended to six years, and the salary of the commissioners increased to \$5,000 a year. Provisions were made for a secretary, three clerks, and other experts and clerks as needed.

(2) The act applied to railroads operated as common carriers and to wharves, elevators, and other facilities used in connection with rail and water transportation. It also included interurban

electric railroads and all companies engaged in express, water transportation, sleeping car equipment, or like businesses. Steam or electric railroads transporting passengers wholly within a city; or between contiguous cities, and private railroads not common carriers were specifically excluded. However, any private tracks used as a part of the system of a common carrier were subject to the same control as those of the common carrier. The jurisdiction of the Commission did not extend over other public utilities except in so far as it already received annual reports from telegraph and telephone companies.

(3) Broad regulative powers were given to the Commission over depots, switches, sidetracks, and other railroad facilities.

(4) The Commission was given wide control to assure adequate and non-discriminatory service. It could supervise interchange of traffic, passenger and freight service, and car distribution.

(5) The Commission was authorized to approve and require the filing of rate schedules, to value the properties of the railroads, and on complaint or on its own motion, and after hearings, to pass on and fix reasonable and non-discriminatory rates. It could not compel the acceptance of joint rates.

(6) The Commission was given the power to formulate its own rules and regulations governing its procedure and to administer all oaths and keep all records necessary for a proper performance of its duties. An appeal from any order or decision of the Commission could be made to the Common Pleas Courts of the State and the Commission could sue and be sued in its own name.

A mandatory type of commission with definite powers over rates and service was thus formed to regulate the railroads

<sup>1</sup> 98 O. L. 342.



of the State. Only minor changes were made in the law during the five years this Commission was in existence. The power over joint rates which had been left out of the original law was added the next year, together with the authority of adjudicating rather than merely reporting on property damage claims and overcharges.<sup>2</sup> Additional laws concerning safety of operation also were added from time to time.

*The Public Service Commission of Ohio, 1911-1913.* A vast number of public utility problems were springing up by this time outside of the rather limited field of the railroads. Since the Railroad Commission apparently had worked well, it was felt to be competent to handle the regulation of the great bulk of other public utilities. This expansion of the number of businesses regulated is the most significant feature of the Public Service Commission Act of 1911.<sup>3</sup> Instead of rewriting and reorganizing the old law on the subject and incorporating it with the new, the General Assembly used the easy but highly confusing method of adding 84 sections to the old act.

The principal powers which were added may be summarized as follows:

(1) The extension of the Commission's jurisdiction to include telegraph, telephone, electric light, gas, natural gas, pipe line, water works, heating and cooling, messenger, signaling, street railway, and suburban railway companies.

(2) The authority was granted to make valuations of any railroads or public utilities. At this time the Legislature did not provide any definitions or factors of value to guide the Commission.

(3) After years of agitation the Commission was authorized to prescribe a uniform system of accounts. As far as

was practical, these were to follow the system set up by the Interstate Commerce Commission for those utilities reporting to that Commission.

(4) Control over security issues was granted at this time.

(5) Authority was given to the Commission to require, whenever reasonably necessary, the joint use of utility equipment in the streets, railroad track connections, and continuous telephone lines; control over all contracts of sale, lease, and joint use of public utilities and mergers of telephone companies; and over the issuance of certificates of public convenience and necessity for construction of new telephone lines in territory already being served by other telephone companies.

(6) Finally, the Commission was given an appellate jurisdiction over municipal ordinances fixing rates for service and requiring additions and extensions by utility companies. Once a utility accepted an ordinance the Commission was without jurisdiction, but before such time it could on an appeal review the reasonableness of the ordinance.

While the Public Service Act of 1911 marked the beginning of administrative commission regulation of local utilities in Ohio, their regulation was not new at that time. As early as 1869, two years after the creation of the office of Commissioner of Railroads and Telegraphs, incorporated municipalities were permitted by law to control by ordinances the rate charged by gas utilities and to negotiate binding rate contracts.<sup>4</sup> In 1889 similar authority was extended over the electric utilities and in 1904 over the water utilities.<sup>5</sup> Thus the sentiment in favor of municipal home rule had a development which paralleled the growth of the utilities themselves.

<sup>2</sup> 99 O. L. 128, 130.

<sup>3</sup> 102 O. L. 549 ff.

<sup>4</sup> 66 O. L. 218.

<sup>5</sup> 86 O. L. 62; 97 O. L. 114.

This sentiment culminated in a Home Rule Amendment to the State Constitution in 1912. By giving to the municipalities a wide range of power over the utilities, this amendment rigidly set the institutional background upon which the Legislature has imposed administrative commission regulation. The result has been a compromise between the two types of utility regulation. Administrative commission regulation became primarily appellate in its jurisdiction, functioning only when municipal regulation failed to reach a satisfactory solution in a given situation.<sup>6</sup>

*The Public Utilities Commission of Ohio, 1913-date.* In 1913 the name of the Commission was again changed, becoming the Public Utilities Commission of Ohio.<sup>7</sup> Two important changes in the law resulted from this act. (1) The Legislature incorporated into the law very definite and detailed definitions and methods to be followed by the Commission in making valuations. Ohio is unique in the statutory detail with which it instructs its administrative commission in the matter of public utility valuations. (2) The power to review the orders and decisions of the Commission was taken from the Common Pleas Courts and given exclusively to the Supreme Court of the State. All appeals are now taken direct to the Supreme Court. This change had been recommended many times by both the Railroad Commission and the Public Service Commission in order to minimize the delays incident to a judicial review of their orders.

In the intervening years few important changes have been made in the

basic law. In 1919 the Commission was given an absolute control over the abandonment of service by any railroad or public utility.<sup>8</sup> This was an especially important addition to the powers of the Commission because of its lack of control over the extension of any utility wholly within the borders of any municipality under the home rule provisions of the State Constitution.

In 1921 motor transportation companies were first placed under the jurisdiction of the Commission. This act merely defined motor vehicles for hire used to transport passengers within the State as public utilities subject to the jurisdiction of the Public Utilities Commission. In 1923 this law was amended to include transportation of both passengers and property which were not carried wholly within a municipality or between contiguous municipalities. Provisions were made for the issuance of certificates of convenience and necessity, the imposition of special taxes, the issuance of drivers' licenses, and the requirement of adequate liability insurance policies or bonds.<sup>9</sup> In 1925 the law was somewhat modified to permit local police regulation of motor transportation companies by the municipalities. The transfer of certificates of convenience and necessity was also provided for at this time.<sup>10</sup>

In 1925 the Commission was ordered by the General Assembly to make an investigation of telephone rates within the State and additional moneys were appropriated to meet the added expenses. In 1927 the utilities were permitted, after approval by the Commission, to vary their rates according to stipulated changes in costs. This was

<sup>6</sup> An interesting discussion of this administrative setup can be found in an article by Ben W. Lewis, "Commission Regulation and Home Rule in Ohio," *Journal of Land & Public Utility Economics* 207 (May, 1933).

<sup>7</sup> 103 O. L. 804 ff.

<sup>8</sup> 108 Part I, O. L. 372.

<sup>9</sup> 110 O. L. 211.

<sup>10</sup> 111 O. L. 516.

primarily to allow electric rate contracts which incorporated a coal clause.<sup>11</sup>

The first major change in the Commission's administrative set-up occurred in 1929. At this time a Superintendent of Investigation was provided for by law, whose duty it was to make preliminary investigations of formal complaints and, under order of the Commission, assign attorney examiners to hear cases. He was also placed in general charge of the office of the Commission and made custodian of its records. At the same time it was provided that no utility rate was to take effect until it had first been approved by the Commission. Prior to this time the utilities were permitted to charge a new rate under bond after the period of suspension had elapsed and until the reasonableness of the rate was decided.<sup>12</sup>

#### *Peculiarities of the Public Utility Law of Ohio*

In most respects the present laws of Ohio relating to the regulation of public utilities are similar to those of many other states. Yet they have certain characteristic differences and are in some respects unique. These differences may be classified as procedural, jurisdictional, and financial.

*Procedural Differences.* A general characteristic of the Ohio public utility laws is the detail with which the statutes provide for the Commission's procedure in the administration of its duties. Formal hearings are required in many instances. The number of days' notice to be given the parties in the different types of cases, the method of serving notices and papers upon the parties, the filing of answers and protests, and similar details are specifically set forth in the statutes. The practical

result of this situation is to prevent, except in a few cases, the informal hearings, with their frequent settlement of disputes by agreement, which are becoming increasingly common in some states.

Probably the most unique provision of the Ohio law is that giving to the Commission the power, and in some instances the duty, of making valuations of utility properties. Most state commissions have the authority to make valuations but the Ohio Commission must report on a number of elements. With virtually no change in the law from the date of its enactment in 1913 to the present time, these are as follows: (a) the original cost of land, with a statement as to how it was acquired; (b) the value as of a date certain of land, to be obtained by a comparison with similar neighboring lands; (c) the additional value upon land resulting from the common ownership of several pieces, as for a right-of-way, together with the added value allowed specified for each parcel; (d) the reproduction cost new as of a date certain of the physical property, other than land, showing the value of the separate items together with the unit basis of their valuation; (e) the depreciation of the physical property from its reproduction cost new for mechanical deterioration, age, obsolescence, lack of utility, or for any other cause, showing in detail the per cent and amount for each class of property; (f) the net value as of a date certain of the physical property, to be found by subtracting the depreciation from the reproduction cost; (g) any additional value attributable to franchises, good will, or financing, showing separately the basis of computation or estimate of each.

The report must show separately the property used and useful to the utility

<sup>11</sup> 112 O. L. 266.

<sup>12</sup> 113 O. L. 16.

or railroad in furnishing service to the public, the property held by the utility or railroad for other purposes, and such other items concerning values and methods of making valuations as the Commission deems proper. It must also show the amounts, dates, and rates of interest of all bonds outstanding, the property upon which they are a lien, and the amounts paid for the property; and in such detail as may be necessary, the original capital stock and the moneys received by reason of any issue of stock, bonds, or other securities. Finally, the report must show the net and gross receipts, the methods by which moneys were expended and paid out, and the purposes of these payments.<sup>13</sup>

Of particular interest is the marked emphasis placed upon reproduction cost new less depreciation as the measure of value. The original cost of the utilities' properties is nowhere directly specified as a factor of value which must be considered by the Commission. Some indication of this cost can be obtained from the required data, but the Commission is not specifically bound to consider it as in the case of reproduction cost.

The lack of any mention of "going value" in the law is also noteworthy in light of the detail with which it outlines the Commission's procedure in making valuations. Both the Commission and the Ohio Supreme Court have agreed that going value must be considered in valuations, but have not been able to agree upon a method for determining its amount.<sup>14</sup>

*Jurisdictional Differences.* The principal jurisdictional variation from the usual practice found in the present regulatory set-up in Ohio is constitutional rather than legislative. Since the Home

Rule Amendment to the State Constitution in 1912 the breadth of commission regulation within the State has been decisively limited. Coming, as it did, within a year of the extension of the Commission's jurisdiction over a much wider range of utilities, this amendment has prevented the development of the type of continuous administrative commission regulation for which it was originally created to provide.

Some attempts have been made to nullify, in part at least, this division in jurisdiction, but with little effect. Today, the Commission still has only a secondary jurisdiction for most purposes over heating, cooling, gas, electric, and water utilities. When a municipality neglects to exercise its right to regulate these utilities, or when the regulation embodied in a valid ordinance is not acceptable to either the utility involved or to the electors of the community, the authority of the Commission may be invoked. Transportation facilities serving wholly within a municipality, or between contiguous municipalities, are specifically exempted from Commission control, while all others are solely under its regulation. The telephone companies are the only local utilities over which the Commission has a continuing jurisdiction. The apparent inconsistency in the case of the telephone companies is the result of judicial interpretation of the statutes. The Commission first refused to accept jurisdiction over them because of the Home Rule Amendment to the Constitution, but it was forced upon them by the Supreme Court of the State.<sup>15</sup>

Control over abandonments is the one outstanding exception to this division of authority. Whereas the Public

<sup>13</sup> G. C. 499-9, 499-10, 499-11, 499-12.

<sup>14</sup> *In Re Ohio Bell Telephone Co.*, Ohio Pub. Ut. Com. Rep., Vol. 19, p. 67 (1931).

<sup>15</sup> In *Local Telephone v. Cranberry Mutual Telephone Co.*, 102 O. S. 524 (1921), the court said that the failure

(Footnote 15 continued on page 401)



Utilities Commission does not have an initial jurisdiction over the entrance of local utilities into the market, except telephone companies under certain conditions, it has the sole and absolute authority in regard to abandonments. A municipality may permit or refuse, as it chooses, the right of a utility to render service in the community and the Commission has no power in the matter. In the converse situation of an abandonment the opposite is true, the Commission having the sole authority of permitting or refusing the petition. This is true whether the utility is petitioning to abandon, or the municipality is attempting to force a withdrawal of service.

*Financial Differences.* The method of financing the work of the Commission used by the General Assembly of Ohio, while not unique, is comparatively little used. This is true in spite of its simplicity and apparent fairness. An assessment of not more than \$200,000 a year is divided among all utilities under the jurisdiction of the Commission, except the motor transportation companies, upon the basis of their intrastate gross revenues. The amount each utility must pay is computed by the Commission, paid to the treasurer of the State, and placed by him in a special fund. The General Assembly then makes appropriations from this fund for the general maintenance of the Commission. If the total costs for any year are greater than \$200,000, excluding the maintenance of the Bureau of Investigation, the excess is appropriated from the general funds of the State.<sup>16</sup>

(Footnote 16 continued from page 400)

to obtain a certificate of convenience and necessity from the Public Utilities Commission placed the Company under a legal infirmity and made it incapable of contracting for the furnishing of telephone service. "The contractual incapacity in no way affects or limits the municipal powers, but renders a contract made with another who is under disability, ineffectual and unenforceable. The contract falls because of the infirmity

The expenses of the Bureau of Investigation are kept in a separate account and are paid from another fund. The principal function of this Bureau is the regulation of motor transportation companies. These companies are exempted from the general assessment placed upon the other utilities and instead pay a special tax. One half of the amount paid by motor transportation companies operating over regular routes or between fixed termini is credited to the municipalities and counties through which they run, upon the basis of the number of miles operated in each. The other half of these taxes, and all the tax paid by the motor transportation companies operating over irregular routes, is placed by the treasurer of the State in a special "state maintenance and repair" fund. The General Assembly then makes appropriations from this fund for the maintenance of the Bureau of Investigation.<sup>17</sup> All moneys remaining in the fund over the cost of maintenance of the Bureau are credited to the State Highway Department for use in repairing state highways.

#### *Organization of the Public Utilities Commission of Ohio*

With all its detail in other respects the statutes still leave with the Commission the power to develop in the main its own administrative organization. The statutes provide for a Superintendent of Investigation, an Assistant from the Attorney General's office as attorney for the Commission, Attorney Examiners, and a special bureau for the supervision of motor transportation companies.<sup>18</sup>

of the other party, and this section (G. C. 614-52), regulatory in nature, cannot be said to abridge the constitutional grant comprised in the Home Rule Amendment."

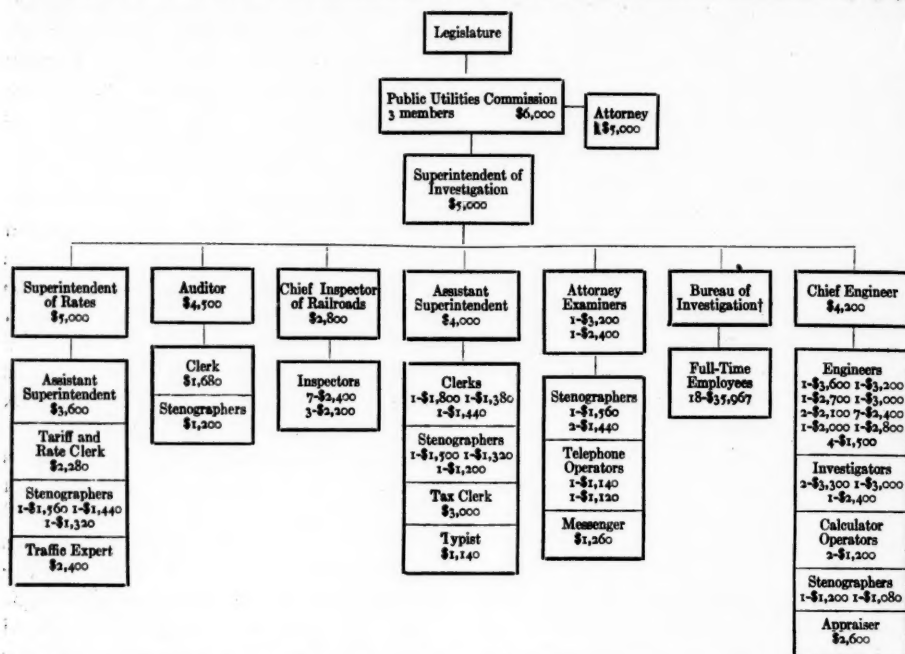
<sup>16</sup> G. C. 606.

<sup>17</sup> G. C. 614-94, 614-94a, 614-95, 614-96.

<sup>18</sup> G. C. 496, 497.



DIAGRAM I. ADMINISTRATIVE ORGANIZATION OF THE PUBLIC UTILITIES COMMISSION, 1929.\*



\*Ninth Executive Budget, State of Ohio, 1931-2, (Columbus: F. J. Heer Publishing Co., 1931), p. 57.

†This Bureau was formerly called the Motor Transportation Department. Details were not obtainable, the sum given being the total payroll of the Bureau.

With these exceptions the Commission has been free to organize its staff in a manner best suited to its needs.

Diagram I shows the organization of the Public Utilities Commission in 1929 when the office of the Superintendent of Investigation was first created. In its essentials it appears to be similar to that found in many other states. Its principal weakness is the lack of an accounting department for analyzing financial reports of the utilities. The Auditor probably performs this function, but with only one clerk and one stenographer to assist him he cannot possibly make a very thorough analysis of the 1,040 company reports, exclusive of the motor trucking companies, which are filed each year.<sup>19</sup>

<sup>19</sup> The Commission does not include the motor truck-

Low salaries have been, and are today, a handicap to most state regulatory commissions. Ohio is not an exception to this general rule. The entire cost of running the Commission in 1929 was \$240,323.14, almost \$200,000 of which went for the salaries of a staff which was expected to regulate utilities having a total corporate capitalization of \$8,135,000,000, a total corporate investment of \$9,296,000,000, and intrastate gross earnings totaling \$743,372,000.

Eighteen men have been members of the Public Utilities Commission and its predecessors, the Public Service Commission and the Railroad Commission. While the term of office is six years, the average length of service has been  $4\frac{1}{4}$

ing companies in its statistical reports because of the general unreliability of their annual reports.

years, with a range of from 2 to 11 years. The present Commission is composed of Mr. E. J. Hoople, chairman, who has served two years of his term, Mr. F. W. Geiger who has served four years, and Mr. Schaber who was appointed to office early in 1933.

Some idea of the magnitude of the task faced by the Commission may be obtained by an examination of Table I. The intrastate gross earnings of the various types of utilities constitute probably the best measure of their relative importance, because the reported capitalization and investment are not segregated between interstate and intrastate properties of the utilities. If the steam railroads are excluded (and they well might be since the Interstate Commerce Commission so dominates their regulation) and the Pullman, Railway Express, and Western Union Companies likewise, because of their extensive operations outside the State, the remainder gives a more nearly accurate picture of the capitalization and property investment actually under the immediate control of the Commission. This leaves a

total capitalization for the remaining utilities of about \$1,500,000,000 and an investment of about \$1,800,000,000. This does not include the motor transportation companies since the Commission's reports give no data for motor trucking companies and but few for the motor bus companies. With intrastate gross earnings of over \$19,000,000 for the motor bus companies alone, a conservative estimate would give an additional capitalization and investment of at least \$50,000,000 and \$60,000,000 respectively.

Excluding the first four years of commission regulation when the Railroad Commission was functioning at an average annual expenditure of \$42,000, the total cost of the succeeding 20-year period has been \$3,520,635.67, or, in round numbers, \$176,000 a year. In this amount is included the cost of the operation, over a six-year period, of the Bureau of Investigation which was financed from another fund. To exclude this would bring the average yearly cost down to \$160,000. If the averages are calculated for each of the major five-year periods, we find an average yearly

TABLE I. THE CAPITALIZATION, INVESTMENT AND INTRASTATE GROSS EARNINGS OF THE PUBLIC UTILITIES AND RAILROADS UNDER THE COMMISSION'S JURISDICTION.\*

Type of Utility	No. of Companies	No. of Customers or Service Rendered	Capitalization†	Investment †	Intrastate Gross Earnings
Total	1,040		\$8,135,255,148.52	\$9,296,117,813.03	\$743,372,857.36
Steam Railroads.....	93	28,485,917 pass. 273,752,776 tons	\$6,356,259,107.69	\$6,821,900,819.31	\$384,457,690.00
Street & Suburban R. Rs.....	17	540,805,595 pass.	140,317,099.00	163,935,043.89	36,456,433.99
Electric Interurban Rys.....	43	84,872,813 pass.	85,461,102.28	127,407,973.00	15,335,661.96
Depot Companies.....	6		61,878,100.00	85,989,705.92	2,919,074.71
Sleeping Car Company.....	1		120,150,000.00	255,208,784.12	405,552.00
Express Company.....	1		32,900,000.00	52,135,571.38	1,717,998.00
Water Trans. Companies.....	4		2,285,300.00	4,898,625.65	224,755.44
Telegraph Companies.....	3		210,446,177.91	310,322,134.25	1,033,182.49
Messenger & Signal Cos.....	8		480,408.49	1,114,553.12	886,267.08
Heating & Cooling Cos.‡.....	7	2,927 customers	2,146,506.30	1,870,523.36	258,970.12
Pipe Line Companies.....	4	13,581 miles	31,135,000.00	69,322,675.66	1,201,782.27
Motor Trans. Cos.§.....	254	28,029,225 pass.			19,338,004.63
Electric Companies.....	101	1,439,717 customers	619,271,500.73	650,449,959.45	131,178,969.44
Natural Gas Companies.....	89	1,385,801 "	252,730,284.63	461,778,452.81	136,900,753.64
Artificial Gas Companies.....	14	35,337 "	6,191,172.65	15,119,893.67	2,176,707.64
Water Works Companies.....	38	37,081 "	11,545,400.95	15,282,403.50	2,209,600.68
Telephone Cos. A, B, & C.....	127	930,138 subscribers	200,867,773.14	256,779,114.28	65,832,184.20
Telephone Co. D.....	228	28,543 "	1,190,214.75	2,601,579.66	739,269.07

\*Ohio Public Utilities Commission Report, 1931.

†Total corporate capitalization and investment included.

‡Includes four electric utilities giving heating service, not included in last three figures.

§Figures are for motor bus only.

cost during the period from 1911 to 1915 of \$95,000; from 1916 to 1920, \$162,000; from 1921 to 1925, \$170,000; and from 1926 to 1930, again excluding the Bureau of Investigation, \$222,000.

The Bureau of Investigation, which is the division of the Commission responsible for supervising motor transportation companies, as well as its field investigating force, is financed by appropriations made by the General Assembly from the "state maintenance and repair" fund. The fund has ranged in amount from \$100,000 to over \$300,000 a year. The average yearly costs of the Bureau have been \$55,000.

For 1930 the combined expenses of the Commission and the Bureau of Investigation were approximately 35/1000 of 1% of the intrastate gross earnings of the utilities. Table II gives a summary of the disbursements made by the administrative commissions for their entire existence, for each of the five-year periods and for the four years of the Railroad Commission.

TABLE II. SUMMARY OF THE DISBURSEMENTS OF THE PUBLIC UTILITIES COMMISSION AND ITS PREDECESSORS FOR FIVE MAJOR PERIODS FROM 1906 TO 1930 INCLUSIVE.\*

Expenses	Total Disbursements Nov. 15, 1906 to Dec. 31, 1930	Major Periods				
		Nov. 15, 1906 to Nov. 14, 1910†	Nov. 15, 1910 to June 30, 1915	July 1, 1915 to June 30, 1920	July 1, 1920 to June 30, 1925	July 1, 1925 to June 30, 1930‡
General						
Personnel—salaries and wages.	\$1,936,184.14	\$ 97,723.20	\$235,787.37	\$441,225.49	\$419,303.66	\$742,144.42
Maintenance.....	438,860.87	71,427.44	168,727.07	79,750.16	60,863.80	113,549.36
Equipment.....	16,220.45	249.97	7,730.19	5,704.60	1,404.69	1,131.00
Total.....	\$2,509,362.04	\$169,400.61	\$474,884.13	\$526,680.25	\$481,572.17	\$856,824.88
Valuation						
Personnel—salaries and wages.	\$ 705,811.09			\$241,425.05	\$260,479.29	\$ 203,906.75
Maintenance.....	156,956.47			41,851.13	64,939.54	50,165.80
Equipment.....	1,992.97			972.43	625.93	394.61
Total.....	\$ 864,582.58			\$284,157.61	\$325,957.81	\$ 254,467.16
Bureau of Investigation						
Personnel—salaries and wages.	\$ 241,859.92				\$ 24,345.46§	\$ 217,514.46
Maintenance.....	73,730.43				16,895.95	56,834.48
Equipment.....	484.13					485.13
Total.....	\$316,074.48				\$41,241.41	\$274,833.07
Grand Total.....	\$3,690,036.18	\$169,400.61	\$474,884.13	\$810,837.86	\$848,858.32	\$1,386,055.26

\*Ohio Public Utilities Commission Reports, 1906-1931 inclusive.

†Railroad Commission only.

‡Valuation costs included in General Expenses for last two years.

§Two years only.

### *Quantitative Analysis of the Commission's Dockets*

A quantitative measure of the results of commission regulation in Ohio may be obtained by an analysis of its dockets. These are the devices by means of which the Commission is able to keep a record of the complaints and cases filed with it for consideration. The statutes merely require that a record be kept. The system employed at any time is wholly within the discretion of the Commission.

The Ohio Commission and its predecessors have always used for recording their formal proceedings a Formal Docket which still carries the great majority of these cases. However, from time to time, special dockets have been begun to record certain types of formal cases. In 1913 a docket for administrative orders was started. These orders as a rule are concerned with matters of general application to all utilities, or to those of a particular type. They include rules and regulations for procedure before the Commission, safety rules for

the operation of motor transportation companies, and other similar matters. To the close of 1930, 115 administrative orders were issued by the Public Utilities Commission.

In 1914 the practice of numbering, or docketing, informal complaints was begun by the Rates and Service Department of the Commission. Only those complaints were numbered which gave some indication that they might develop into formal complaints. All correspondence concerning the complaint is then filed under this number. If a field investigation is required, the complaint is referred to the Bureau of Investigation. The docket is neither incorporated in the Commission's annual report nor recorded in a journal similar to that in which the formal cases are entered. However, a brief examination of the Commission's office files shows more than 18,000 such complaints entered upon this docket to April, 1933.

In 1915 an Investigation and Suspension Docket was begun by the Commission for recording certain railroad and, since 1923, motor transportation company, cases. Whenever a railroad or motor transportation company makes a change in its rate or service schedules, the Commission has the authority to suspend the effective date of such change during the pendency of an investigation but for not more than 120 days. If an investigation and suspension are ordered by the Commission, the case is docketed on the I. & S. Docket. From 1915 through 1930 these cases numbered 132.

Applications by utilities for increases in rates have been entered on the Advanced Utility Rate Proceedings Docket since 1920. Although the more important cases recorded on this docket are presented in full in the annual reports of the Commission, in other cases the record is very meager or is altogether lack-

ing. It has not been possible, therefore, to make a complete analysis of the 341 cases entered between 1920 and 1930 inclusive.

For the 193 formal rate cases for which records were available to the writer, the decisions, classified by the type of utility and by the character of their disposition, were as follows:

Type of Utility	Total	Approved	Denied	Modified	Settled by Agreement	Withdrawn by Company
Total.....	193	100	14	15	32	32
Telephone....	96	65	5	4	10	12
Electric.....	47	20	3	4	8	12
Natural Gas..	30	3	1	7	13	6
Artificial Gas	4	3				1
Water Works..	15	8	5		1	1
Heating.....	1	1				

In 1923 the Commission's jurisdiction was extended to include motor transportation companies. One of the most important functions of the Commission in regard to these companies is its control over their entrance into the market through the issuance of certificates of convenience and necessity. From the very beginning the Commission began docketing these applications for certificates on a special Bus Docket. By April, 1933, 5,846 such cases had been entered on this docket. A comparison at two recent dates shows the various types of transport involved and the number of each:

Certificates in force September 15, 1930.....	1,777
Bus certificates.....	319
Regular-route freight certificates.....	281
Irregular-route freight certificates.....	1,777
Certificates in force January 1, 1932.....	1,744
Intrastate certificates.....	1,504
Bus certificates.....	232
Regular-route freight certificates.....	225
Irregular-route freight certificates.....	1,047
Interstate certificates.....	240
Bus certificates.....	52
Regular-route freight certificates.....	123
Irregular-route freight certificates.....	65

All other formal cases involving motor transportation companies have been entered on the Formal Docket.

The Formal Docket contains the greatest number of the formal proceed-



ings conducted by the Commission and embraces cases involving all types of utilities under its jurisdiction and almost all types of cases. When each of the commissions was organized, it started a Formal Docket of its own, although it was required to hear and decide all cases filed and pending before its predecessor. The Railroad Commission during its existence from November, 1906 to July, 1911 entered 139 cases upon its Formal Docket. The nature and disposition of the 122 for which it was possible to find decisions were as follows:

Year	Total	Service	Rates	Claims	Miscellaneous	Granted	Denied	Settled
Total	122	57	33	10	22	51	31	40
1906	20	13	5	.....	2	8	5	7
1907	17	9	6	.....	2	3	3	11
1908	22	11	7	.....	4	10	7	5
1909	25	11	6	.....	1	11	6	8
1910	38	13	9	.....	7	19	10	9

During the 20-year period from the organization of the Public Service Commission in 1911 to the end of 1930, 7,387 cases were filed on the Formal Dockets of the two commissions. Of these, 620 were filed before the Public Service Commission and 6,767 before the Public Utilities Commission. The records for these cases were examined and the data that were obtained have been classified and summarized in a number of tables. To make the broader trends more easily recognizable the 20 years covered were divided into four five-year periods.

Table III classifies the cases filed on the Formal Docket of the commissions into 13 major types and shows the distribution of the cases over the four major time intervals. Table IV shows how the major types of cases have been disposed of by the Commission. The discrepancy in the total cases shown on these two tables and the two which follow arise because in some instances cases are filed which concern more than

one matter and are therefore counted more than once. Table V indicates the distribution of the major types of cases among the seven major types of utilities,

TABLE III. MAJOR TYPES OF CASES FILED ON THE FORMAL DOCKET OF THE PUBLIC UTILITIES COMMISSION FOR FOUR MAJOR PERIODS FROM 1911 TO 1930 INCLUSIVE\*

Major Types of Cases	Total Cases 1911 to 1930	Major Periods				
		1911 to 1915	1916 to 1920	1921 to 1925	1926 to 1930	
Total.....	8,179	1,386	1,427	1,872	3,494	
Security issues.....	2,232	444	556	623	609	
Service, complaints.....	351	93	84	112	62	
Sales, leases, consolidations, etc.....	2,696	202	273	593	1,628	
Reparation claims.....	248	119	80	12	28	
Rate increases.....	20	2	7	.....	11	
Rate decreases.....	213	1	1	.....	211	
Rate complaints.....	430	136	87	76	131	
Rate appeals from municipal ordinances.....	175	33	45	65	32	
Physical connections and interchange of service.....	225	129	85	7	4	
Certificates of convenience and necessity.....	68	13	8	27	20	
Abandonments.....	547	2	76	204	265	
Citations.....	123	.....	.....	9	114	
Miscellaneous.....	351	212	116	144	379	

\*Ohio Public Utilities Commission Reports, 1911-1931 inclusive.

†Since 1920 these cases have been docketed in the A. U. R. P. Docket.

‡Applications by motor transportation companies entered on a Bus Docket.

and their distribution among the four major time periods. Table VI discloses the approximate time which elapsed between the filing of a case and its final disposition. A case was considered disposed of when a final entry was made upon the journal of the Commission, even though supplementary or modifying orders were issued at a later time.

The classification under which the largest number of cases were filed is sales, with security issues a close second. The reason for the large number of applications for approvals of sales appears in Table V, in the predominance of applications for the sale of motor transportation companies. These account almost alone for the increase in the total number of cases filed with the Commission in the period from 1926 to 1930 over the earlier periods, and similarly the smaller increase in the period from 1921 to 1925.

The smaller and steadier increase in applications for the approval of security issues is also accounted for in part by the extension of the Commission's jurisdiction over the motor transportation companies. The electric companies have also been increasingly active in this respect, while the railroads, probably because of the Transportation Act of 1920, have shown a steady decrease in security applications.

The small number of rate-increase cases filed is attributable to the inauguration of the Advanced Utility Rate Proceedings Docket in 1920. Ten of the 20 cases involved small telephone companies asking for rate increases to reflect the increased service resulting from consolidations. Eight of the other 10 involved railroads. The applications for rate decreases are shown by Table V to be almost solely for electric utilities. These all occurred during the last two of the 20 years being studied.

The almost complete disappearance of applications for approval of contracts for physical connections and interchange of service is evidence of the virtual completion of the era of telephone consolidations. Almost all these cases involved

the telephone companies and came during the first 10 years and before the consolidation, which resulted in the formation of the Ohio Bell Telephone Company, had been completed. The increase in applications for abandonment of service were predominantly concerned with the railroads. This is explained by two developments which have appeared in recent years: (1) the large number of abandonments of stations and passenger trains by steam railroads; and (2) by the increasing number of electric interurban railroads which have ceased operations. The citations were almost all entered against motor operators, either because of a failure to make an annual report to the Commission, or to show cause why they should not be considered a motor transportation company subject to regulation by the Commission.

As is shown in Table IV, 70% of the cases filed with the Commission were approved or granted and 16% were dismissed or denied. The other 14% are accounted for by all other types of disposition entered by the Commission. Ninety three per cent of the applications for security issues were approved and

TABLE IV. DISPOSITION OF THE MAJOR TYPES OF CASES FILED ON THE FORMAL DOCKET OF THE PUBLIC UTILITIES COMMISSION FROM 1911 TO 1930 INCLUSIVE.\*

Disposition of the Cases	Total Cases	Major Types of Cases												
		Security Issues	Service Complaints	Sales, Leases, etc.	Reparation Claims	Rate Increases	Rate Decreases	Rate Complaints	Rate Appeals	Physical Connection	Certificates of Convenience and Necessity	Abandonment	Citation	Miscellaneous
Total.....	8,200	2,254	351	2,692	237	21	212	440	173	226	68	547	123	856
Approved or Granted.....	5,748	2,087	.....	2,463	.....	6	210	.....	2	201	7	398	.....	374
Relief Granted.....	281	.....	89	.....	63	.....	.....	129	.....	.....	.....	.....	.....	.....
New Rates Ordered.....	67	.....	.....	.....	.....	.....	.....	.....	67	.....	.....	.....	.....	.....
Settled by Agreement of the Parties.....	262	.....	78	.....	66	.....	.....	59	59	.....	.....	.....	.....	.....
Dismissed or Denied.....	1,338	122	130	165	103	14	1	198	17	23	22	132	.....	411
Voided—No Prosecution	347	45	54	64	5	1	1	54	28	2	5	17	.....	71
All Others.....	157	.....	.....	.....	.....	.....	.....	.....	.....	.....	34	.....	123	.....

\*Ohio Public Utilities Commission Reports, 1911-1931 inclusive.

†Includes 757 transfers of motor transportation company certificates of which many also involved the sale of property and were therefore counted twice.

TABLE V. MAJOR TYPES OF CASES FILED ON THE FORMAL DOCKET OF THE PUBLIC UTILITIES COMMISSION, BY TYPE OF UTILITY AND MAJOR PERIOD, FROM 1911 TO 1930 INCLUSIVE.\*

Type of Utility	Total Cases	Major Periods				Major Types of Cases												
		1911 to 1915	1916 to 1920	1921 to 1925	1926 to 1930	Security Issues	Service Complaints	Sales, Leases, etc.	Reparation Claims	Rate—Increases	Rate—Decreases	Rate—Complaints	Rate—Appeals	Physical Connection	Certificates of Conven- ience and Necessity	Abandonment	Citation	Miscellaneous
Total.....	7,387	1,341	1,424	1,830	2,792	2,232	351	2,696	248	20	213	430	175	225	68	547	123	851
Railroad.....	1,966	523	495	453	495	558	155	58	246	8	.....	186	.....	8	.....	473	5	265
Telephone.....	1,329	393	391	277	268	464	70	400	.....	10	2	59	2	214	24	22	1	141
Electric.....	1,661	218	324	507	612	641	40	465	2	.....	201	112	62	2	1	10	2	139
Gas.....	562	151	152	118	141	156	43	148	.....	1	7	47	77	.....	.....	35	1	67
Motor Transport	1,638	.....	.....	419	1,219	304	34	1,586	.....	.....	11	1	.....	43	3	113	274	.....
Water.....	173	38	41	49	45	93	7	22	.....	1	1	7	29	1	.....	1	1	19
Miscellaneous...	58	18	21	7	12	16	2	17	.....	.....	2	8	4	.....	.....	3	.....	6

\*Ohio Public Utilities Commission Reports, 1911-1931 inclusive.

91% of the applications for approval of sales. The opposite trend is apparent in reparation claims, rate complaints, and service complaints. In these cases approximately 45% were dismissed or not prosecuted by the complainants. Approximately 25%, 30%, and 22% respectively of the remainder were settled by agreement of the parties. This is probably accounted for by the nature of the cases. Usually, if there is any showing of reasonableness in a claim or complaint, the utilities make an effort to arrive at a satisfactory adjustment. The cases which reach the Commission are, therefore, usually questionable in their merits to begin with.

Table V has been commented on in part above. A few additional trends are worthy of notice. The mushroom-like growth of motor transportation company cases, especially those involving sales, and the gradual increase in electric utility applications are interesting. The latter is about equally divided between rate decreases, sales, and security issues. While the motor transportation company and electric utility cases have been increasing, the telephone cases have been decreasing. This is attributable to

the more consolidated position of the industry in recent years. After 1920 the consolidation era of the telephone companies was about over. Many small companies and mutuals still remain, but the larger ones have almost all been consolidated into a few groups. The largest single company is the Ohio Bell Telephone Company, and the dominance of the Bell interests is even more complete when one includes the large and separately organized Cincinnati & Suburban Bell Telephone Company.

Table VI shows that 72% of the cases filed are disposed of within the first three months and 86% within the first six months. Of the 72% decided in the first three months after filing, orders were entered in 25% of the cases during the same month; 30% during the next month; and 17% during the following month. These percentages apply to all types of utilities about equally, except for the larger number of motor transportation company cases decided within the month following their filing, and the larger percentage of cases running for more than a year involving the telephone and electric utilities. The many telephone cases which are continued for

TABLE VI. TIME LAPSE BEFORE THE DISPOSAL OF CASES FILED ON THE FORMAL DOCKET OF THE PUBLIC UTILITIES COMMISSION, BY TYPE OF UTILITY AND MAJOR PERIOD, FROM 1911 TO 1930 INCLUSIVE.\*

Type of Utility	Total Cases	Major Periods				Time Lapse before Disposition of Case							
		1911 to 1915	1916 to 1920	1921 to 1925	1926 to 1930	Same Month	First Month	Second Month	First Three Months	Sixth Month	Ninth Month	One Year	More Than One Year
Total.....	7,387	1,341	1,424	1,830	2,792	1,887	2,248	1,193	5,328	1,060	363	188	449
Railroad.....	1,966	523	495	453	495	444	478	333	1,255	383	114	66	148
Telephone.....	1,329	393	391	277	268	356	353	170	879	194	99	56	103
Electric.....	1,661	218	324	507	612	537	575	225	1,357	145	56	23	78
Gas.....	562	151	152	118	141	161	151	82	394	69	21	11	68
Motor Transport	1,638	.....	.....	419	1,219	299	622	361	1,282	246	66	26	18
Water.....	173	38	41	49	45	48	53	18	119	17	5	6	25
Miscellaneous..	58	18	21	7	12	22	16	4	42	6	2	.....	10

\*Ohio Public Utilities Commission Reports, 1911-1931 inclusive.

more than a year are explained by the statutory requirement that a valuation must be made before the rates can be approved to apply to consolidated companies. Valuations also explain those involving the electric and gas utilities. Valuations are always time consuming.

This quantitative analysis of the Commission's work indicates a reasonable promptness in the handling of the majority of cases. A comparison with the study made by Burke for Maryland shows a considerable degree of similarity between the two states in these respects.<sup>20</sup>

A critical appraisal of the Commission's regulation will be presented in Part II of this article. After setting up a standard, based upon the weight of court decisions and the opinions of authorities on public utility regulation, the position of the Ohio Commission as shown by its published opinions will be compared with this standard. On this basis the regulatory policies of the Ohio Public Utilities Commission will be appraised.

<sup>20</sup> Burke, H. C., *The Public Service Commission of Maryland* (Baltimore: John Hopkins Press, 1932).



**MUNICIPALLY OWNED ESTABLISHMENTS WHICH WERE IN EXISTENCE IN THE  
UNITED STATES ON DECEMBER 31, 1932, AND WHICH WERE  
PURCHASING ALL CURRENT DISTRIBUTED**

**ON DECEMBER 31, 1930**

Compiled by Paul Jerome Raver from the Records of the Institute for Economic Research  
(See footnotes and additional data on the Generating Plant list at the end of the table)

**KEY**

P—purchasing all of current distributed  
Pr.—municipal ownership replaced private ownership at date of origin  
S.—steam engine at date of origin  
S. T.—steam turbine at date of origin  
O.—oil engine at date of origin  
G.—gas engine at date of origin  
I.—other types of internal combustion engine at date of origin  
W.—hydro-electric establishment at date of origin

**EXPLANATORY NOTES**

1. Example: Alexander City, Alabama changed in 1906 from private to municipal ownership, using a steam engine, and in 1925 changed to purchasing all of output.
2. Municipal establishments which were generating part and purchasing part of output on December 31, 1930 were included in the list of Municipal Generating Plants published in the August, 1933 issue of the *Journal*, pp. 306-313.

Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin
<b>Alabama</b>		<b>Connecticut</b>		<b>Georgia—Cont'd.</b>	
Alexander City.....	Pr.-1906-S	Groton.....	1903-S, W	Mansfield.....	P-1914
Athens.....	P-1925	Jewett City.....	Pr.-1902-S	Marietta.....	Pr.-1911-S
Evergreen.....	P-1920	Newark.....	1894-S	Maysville.....	P-1926
Hartford.....	P-1928	New Castle.....	P-1918	Monroe.....	1906-S
Lafayette.....	P-1926	Smyrna.....	1893-S	Monticello.....	Pr.-1906-S
Lanett.....	P-1924	<b>Florida</b>		Moultrie.....	P-1913
Laverne.....	P-1917	Bushnell.....	P-1931	Newman.....	Pr.-1903-S
Opelika.....	Pr.-1911-S	Jacksonville Beach (Pablo).....	1915-O	Norcross.....	P-1914
Piedmont.....	P-1927	Leesburg.....	Pr.-1920-S	Oxford.....	P-1908
Sylacauga.....	1913-S	Mt. Dora.....	P-1927	Palmetto.....	P-1913
Troy.....	P-1916	South Jacksonville.....	Pr.-1912-S	Quitman.....	1897-S
<b>Arizona</b>		<b>Georgia</b>		Sylvester.....	P-1926
Mesa.....	P-1918	Aeworth.....	1907-S	Thomaston.....	1909-S
Williams <sup>1</sup> .....	Pr.-1917-S	Adel.....	P-1917	West Point.....	P-1917
<b>Arkansas</b>		Albany.....	Pr.-1928-S	Whigham.....	1896-S
(None)	P-1928	Barnsville.....	P-1892-S	<b>Idaho</b>	
<b>California</b>		Bibb City.....	P-1909	Albion.....	P-1915
Alameda.....	1887-S	Blakely.....	1897-S	Arco.....	1916-O
Asusa.....	P-1919	Brinson.....	P-1911	Burley.....	P-1919
Banning.....	P-1923	Buford.....	1903-S	Declo.....	P-1911
Biggs.....	P-1904	Calhoun.....	P-1921	Du Bois.....	P-1931
Burbank.....	P-1913	Camilla.....	P-1916	Harrison.....	P-1920
Colton.....	P-1896	Cartersville.....	Pr.-1906-S	Heyburn.....	P-1921
Glendale.....	P-1909	College Park.....	P-1920	Minidoka.....	P-1920
Girdley.....	P-1908	Commerce.....	1906-S	Plummer.....	P-1925
Healdsburg.....	Pr.-1899-W	Covington.....	P-1916	Rupert.....	P-1920
Lodi.....	P-1923	Doerum.....	1916-S	Weiser.....	P-1922
Lompoc.....	P-1921	East Point.....	P-1923	Worley.....	1903-S
Redding.....	P-1921	Fairburn.....	1899-S	<b>Illinois</b>	
Riverside.....	P-1896	Forsyth.....	P-1916	Albany.....	P-1917
Roseville.....	1901-S	Grantville.....	1912-S	Armington.....	P-1913
Santa Clara.....	P-1914	Griffin.....	P-1924	Batavia.....	1888-S
Truckee <sup>1a</sup> .....	P-1912	Hampton.....	1910-S	Colona.....	P-1924
Ukiah.....	P-1908	Hogansville.....	P-1917	Fithian.....	P-1917
<b>Colorado</b>		Jackson.....	1899-S	Geneva.....	1913-S
Bonanza.....	Pr.-1899-S	LaGrange.....	P-1913	Hanover.....	1896-S
Cascade.....	P-1907	Laurenceville.....	P-1913	Hopedale.....	P-1922
Dacono.....	P-1921	<b>Indiana</b>		Ladd.....	P-1914
Eckley.....	P-1909	<b>Alabama</b>		Minier.....	1907-S
Erie.....	P-1931	<b>Arkansas</b>		Mt. Olive.....	P-1915
Fountain.....	1900-S	<b>California</b>		Naperville.....	1880-S
Firestone.....	P-1915	<b>Arizona</b>		Ogden.....	P-1921
Granada.....	1919-O	<b>Arkansas</b>		Oglesby.....	P-1916
Lyons.....	P-1931	<b>California</b>			P-1913

## MUNICIPALLY OWNED PURCHASING ESTABLISHMENTS

411

Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin
<i>Illinois—Cont'd.</i>		<i>Iowa</i>		<i>Kansas</i>	
Riverton.....	1902-S	Afton.....	1904-S	Alden.....	P-1912
Rock Falls.....	P-1913	Alta Vista.....	P-1913	Allen.....	1919-O
St. Charles.....	1897-S	Anthon.....	F-1915	Altamont.....	P-1926
Sawyer ville.....	P-1924	Aplington.....	1917-G	Americus.....	P-1921
Staunton.....	1890-S	Auburn.....	P-1923	Andale.....	P-1922
White City.....	P-1925	Bondurant.....	1913-O	Arcadia.....	P-1920
Williamson.....	P-1910	Brandon.....	P-1920	Arma.....	P-1923
	1898-S	Breda.....	P-1914		1914-S
	P-1927	Buffalo.....	P-1916	Axtell.....	P-1917
	P-1916	Burt.....	P-1913	Blue Mound.....	P-1913
	P-1931		1921-O		Pr-1910-O
<i>Indiana</i>			P-1924	Bronson.....	P-1925
Advance.....	P-1914		1915-O	Bushong.....	P-1920
Argos.....	1897-S		P-1918	Cawker City.....	P-1926
Auburn.....	P-1914		1917-O		1908-G
	Pr-1891-S	Callender.....	P-1927	Centralia.....	P-1914
Avilla.....	P-1927	Carlisle.....	P-1920		1908-S
Bainbridge.....	P-1912	Carpenter.....	P-1910	Chapman.....	P-1913
Bargersville.....	P-1914	Corwith.....	P-1921		Pr-1915-G, W
Blountsville.....	P-1922	Danville.....	P-1916	Cimarron.....	P-1916
Bremen.....	P-1925	Dayton.....	P-1914		1910-O
	1899-S	Denver.....	P-1918	Coats.....	P-1927
	P-1916	Dike.....	P-1911	Corning.....	P-1920
Brooklyn.....	P-		1912-O	Deerfield.....	P-1915
Brookston.....	P-1915	Donahue.....	P-1915	De Soto.....	P-1914
Centerville.....	P-1916	Dysart.....	P-1924		1913-G
Chalmers.....	P-1922	Earlville.....	P-1914	Dunlap.....	P-1917
Clayton.....	P-1915		1914-O	Elwood.....	P-1927
Coatesville.....	P-1917	Eldridge.....	P-1919	Elwaco.....	P-1922
Covington.....	P-1912	Eldon.....	P-1920	Emmett.....	P-1923
	Pr-1913-S		1895-S	Enterprise.....	Pr-1900-W
Crotheraville.....	P-1923	Elkhart.....	P-1921		P-1914
Darlington.....	P-1922	Fairbank.....	P-1918	Eudora.....	P-1917
Dublin.....	P-1920	Farmhamville.....	P-1917	Galesburg.....	P-1926
Dunreith.....	P-1921	Fontanelle.....	P-1914	Galva.....	P-1918
Etna Green.....	P-1916	Fonda.....	P-1913	Garden City.....	1913-S
	Pr-1910-G	Fredericksburg.....	P-1917		P-1917
Ferdinand.....	P-1921	Grafton.....	P-1912	Gardner.....	P-1916
Frankton.....	P-1922	Granger.....	P-1921	Glen Elder.....	P-1917
	1900-S	Grimes.....	P-1915	Goff.....	P-1916
Gas City.....	P-1914		1910-S	Green.....	Pr-1917-G
	1896-S	Guttenberg.....	P-1914		P-1920
Hagerstown.....	P-1920	Hinton.....	P-1916	Hamilton.....	P-1922
	1908-S	Hudson.....	P-1922	Haven.....	P-1910
Jamestown.....	P-1922		1915-I	Holyrood.....	P-1912
Knightstown.....	P-1915	Imogene.....	P-1917	Idana.....	P-1927
	Pr-1902-S	Kelley.....	P-1918	Isabel.....	P-1925
Ladoga.....	P-1927	Lake View.....	P-1912	Iuka.....	P-1922
	Pr-1916-S	Lawler.....	P-1914	Jamestown.....	P-1911
Lawrenceburg.....	P-1918		1900-S	Kanora.....	P-1917
	Pr-1902-S	Lehigh.....	P-1910	Kirwin.....	P-1915
Lewisville.....	P-1923	Little Sioux.....	P-1921	La Harpe.....	P-1921
Linton.....	P-1918		1923-O	Lakin.....	P-1915
Middletown.....	P-1923	Livermore.....	P-1924	Lecompton.....	1912-G
Mishawaka.....	P-1918	Long Grove.....	P-1914		P-1924
	Pr-1895-S, W	Marathon.....	P-1923	Ludell.....	P-1922
Monroe.....	P-1905	Milo.....	P-1914	Luray.....	Pr-1910-O
Monteruma.....	P-1915		1907-S		P-1923
	1907-S	Ogden.....	P-1922	Mahaska.....	P-1923
New Carlisle.....	P-1918		1908-S	Menlo.....	P-1926
	1907-S	Orient.....	P-1913	Meriden.....	P-1915
New Ross.....	P-1909	Panora.....	P-1916	Montezuma.....	P-1920
Paoli.....	P-1917		1915-G, W	Morrill.....	P-1912
	Pr-1908-S	Paton.....	P-1921	Mound Ridge.....	1910-G
Paragon.....	P-1922	Pilot Mound.....	P-1916		P-1919
Patoka.....	P-1923	Poehontas.....	P-1908	Mount Hope.....	P-1927
Pendleton.....	P-1923		1912-G	Mulberry.....	1913-S
Pierceton.....	P-1910	Preston.....	P-1916		P-1922
	1898-S	Randolph.....	P-1913	Netawaka.....	P-1916
Pittsboro.....	P-1912	Reactor.....	P-1916	Olpe.....	P-1922
Scottsburg.....	P-1913	Redfield.....	P-1915	Oneida.....	P-1913
Spiceland.....	P-1918	Rembrandt.....	P-1916	Owego.....	Pr-1920-O
Straughn.....	P-1923	Roland.....	P-1912		P-1927
Tipton.....	Pr-1901-S	Sabula.....	P-1912	Oxford.....	P-1922
		Sargent Bluff.....	P-1915	Perry.....	1913-G
Veedsburg.....	1893-S	Stratford.....	P-1926		P-1925
	P-1925	Tennant.....	P-1914	Piqua.....	P-1920
Walkerton.....	1906-S	Urbana.....	P-1917	Pomona.....	P-1915
	P-1914	Wall Lake.....	P-1922	Prescott.....	P-1922
Waynetown.....	P-1914	Westfield.....	1906-S	Queenemo.....	P-1931
Williamsport.....	Pr-1895-S	West Point.....	P-1920	Reserve.....	P-1917
	P-1921	Winthrop.....	P-1918	Robinson.....	P-1916
Winamac.....	1898-S		1912-G	St. Mary's.....	1908-S
	P-1923	Woolstock.....	P-1914		P-1926
				Sabonburg.....	Pr-1920-O
					P-1922
				Seranton.....	P-1919

Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin
<b>Kansas—Cont'd.</b>		<b>Massachusetts—Cont'd.</b>		<b>Minnesota—Cont'd.</b>	
Seneca.....	Pr.-1898-S	Westfield.....	1899-S	Kasson.....	1900-S
Severence.....	P-1924		P-1921	Keewatin.....	P-1917
	1914-G	<b>Michigan</b>		1908-S	
Seward.....	P-1921	Alpena.....	P-	P-1921	
Stark.....	P-1928	Baraga.....	P-	Lake City.....	1893-S
Summerfield.....	P-1928	Bay City.....	1886-S		P-
Troy.....	P-1910	Bellevue.....	P-1927	Lake Park.....	1912-O
Vermillion.....	P-1914	Chelsea.....	Pr.-1891-S	Mabel.....	P-1923
Virgil.....	P-1927		P-1924	Maynard.....	P-1926
Waldo.....	P-1933	Crowell.....	Pr.-1903-S	McKinley.....	P-1911
Waldron.....	P-1923		P-1923	1909-S	
Waterville.....	1909-O	Daggett.....	P-1915	Mountain Iron.....	Pr.-1912-S
Wathena.....	P-1920	Eaton Rapids.....	Pr.-1905-S		P-1924
Willis.....	P-1916		P-1925	Nashauk.....	1906-S
Wiley.....	P-1920	Escanaba.....	Pr.-1891-S		P-1910
			P-1928	Nieleville.....	P-1922
<b>Kentucky</b>		Gladstone.....	1887-S	North Saint Paul.....	1903-S
Bardstown.....	1898-S		P-1910		P-1922
	P-1927	Harbor Springs.....	1898-S	Odesa.....	1901-S
Madisonville.....	Pr.-1908-S		P-1929	Olivia.....	P-1917
	P-1923	Negaunee.....	1898-S		1898-S
Olive Hill.....	P-1927		P-	Ortonville.....	P-1916
Providence.....	1913-S	Newberry.....	1892-S	Perley.....	P-1921
	P-1923		P-	Pier.....	P-1912
<b>Louisiana</b>		Norway.....	1902-S	Preston.....	P-
Broussard.....	1921-O	Stephenson.....	P-1913	Randall.....	P-1923
	P-1927	Wakefield.....	P-1913	Round Lake.....	P-1914
Erath.....	P-1924			Round Prairie.....	P-1921
Fisher.....	P-1931	<b>Minnesota</b>		Rushford.....	1903-S
St. Martinsville.....	1923-S	Ada.....	1900-S		P-1905
	P-1927	Alpha.....	P-1922	Rushmore.....	P-1915
Vidalia.....	1904-S	Anoka.....	Pr.-1908-S	Russell.....	P-1915
	P-1927		P-1918	Saint Charles.....	1903-S
Vinton.....	Pr.-1920-O	Arlington.....	1892-S		P-1916
	P-1927		P-1918	Saint James.....	1894-S
<b>Maine</b>		Bagley.....	Pr.-1910-S		P-1917
Madison.....	1907-W		P-1926	Saint Peter.....	1888-S
	P-1920	Barnesville.....	1904-S		P-1915
Squirrel Island.....	P-1920		P-1923	Sargeant.....	P-1921
Van Buren.....	P-1925	Bayport.....	1904-S	Sauk Center.....	Pr.-1917-O
			P-1914		P-1920
<b>Maryland</b>		Beltrami.....	P-1915	Shakopee.....	1901-S
St. Michaels.....	P-1918	Bigelow.....	P-1915		P-1913
Williamsport.....	Pr.-1899-S	Biwabick.....	1901-S	Shelly.....	P-1920
	P-1913		P-1915	Spooner.....	P-1924
<b>Massachusetts</b>		Bluffton.....	P-1923	Spring Grove.....	1912-G
Ashburnham.....	P-1907	Brainerd.....	1886-W		P-1915
Belmont.....	P-1898		P-1910	Staples.....	1907-S, S. T.
Blandford.....	P-1915	Breckenridge.....	1898-S		P-1919
Boylston.....	P-1912		P-1909	Stephen.....	1900-S
Chester.....	P-1926	Brewster.....	P-1914		P-1922
Chicopee.....	1896-S	Brownston.....	1913-G	Viking.....	P-1923
	P-1918		P-1921	Wadena.....	1898-S
Concord.....	1900-S	Buffalo.....	P-1909		P-1916
	P-1930	Caledonia.....	1904-S	Waseca.....	Pr.-1894-S
Danvers.....	1889-S		P-1919		P-1912
	P-1921	Ceylon.....	1912-G	Whalen.....	P-1928
Georgetown.....	P-1913		P-1921	Winthrop.....	1897-S
Groton.....	P-1909	Chaska.....	1900-S		P-1925
Groveland.....	P-1907		P-1915	Wolverton.....	P-
Hingham.....	P-1895	Darwin.....	P-1920		
Holden.....	P-1912	Dundee.....	P-1922	<b>Mississippi</b>	
Hull.....	Pr.-1894-S	Dunnell.....	P-1920	(None)	
	P-1916	East Grand Forks.....	1902-S	<b>Missouri</b>	
Littleton.....	P-1913		P-1907	Armstrong.....	P-1914
Mansfield.....	1904-O	Ely.....	1889-S	Centralia.....	Pr.-1916-S
	P-1918		P-1924		P-1926
Merrimac.....	1904-S	Fairfax.....	P-1909	Easton.....	P-1931
	P-1916	Fergus Falls.....	1896-W	Farmington.....	1905-S
Middleton.....	P-1913		P-1909		P-1926
North Attleboro.....	1894-S	Gilbert.....	P-1910	Gallatin.....	1898-S
	P-1928	Glyndon.....	P-1920		P-1924
Norwood.....	P-1907	Grand Rapids.....	Pr.-1902-S	Hunnewell.....	P-1915
Paxton.....	P-1914		P-1919	Jamesport.....	1914-O
Princeton.....	P-1913	Granite Falls.....	1891-S, O, W		P-1922
Rowley.....	P-1910		P-	Kirkwood.....	1900-S
Russell.....	P-1920	Grove City.....	P-1913		P-1919
Shrewsbury.....	P-1908	Halsted.....	1915-G	Linneus.....	1904-S
South Hadley.....	P-1914		P-1922		P-1915
Sterling.....	P-1911	Hardwick.....	1913-G	Meadville.....	P-1915
Templeton.....	P-1907		P-1915	Monett.....	1911-S
Wakefield.....	Pr.-1894-S	Harmony.....	P-1915		P-1916
	P-1915	Hendrum.....	P-1921	Mt. Vernon.....	Pr.-1904-S
Wellenley.....	P-1892	Kandiyohi.....	P-1925		P-1925
West Boylston.....	P-1911	Kosota.....	P-1908	Purdy.....	P-1923

## MUNICIPALLY OWNED PURCHASING ESTABLISHMENTS

413

Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin
<i>Missouri—Cont'd.</i>		<i>Nebraska—Cont'd.</i>		<i>New York—Cont'd.</i>	
Stoutsville.....	P-1926	Morrill.....	1914-O	Bergen.....	1909-S
West Plains.....	Pr-1904-S	Nelson.....	Pr-1916-S	Brocton.....	P-1916-S
	P-1913		P-1920	Burdett.....	1903-S
<i>Montana</i>		Ohlawa.....	P-1921	Castile.....	P-1927
(None)		Ong.....	P-1921	Churchville.....	P-1916
<i>Nebraska</i>		Panama.....	P-1918	Delevan.....	1903-S
Alexandria.....	P-1923	Paxton.....	1916-O	Endicott.....	P-1923
Arapahoe.....	1909-O	Polk.....	P-1923	Fairport.....	P-1921
Bartley.....	P-1927	Poole.....	1913-O	Frankfort.....	Pr-1903-S
Beatrice.....	P-1921	Prague.....	P-1917	Gilbertsville.....	P-1910
Belvidere.....	P-1915-S	Ragan.....	1909-G	Green Island.....	P-1923
Bradshaw.....	P-1916	Raymond.....	P-1920	Hamilton.....	1897-S, W
Brady.....	1912-I	Reynolds.....	P-1923	Holley.....	P-1909-S
Brainard.....	P-1923	Riverdale.....	P-1925	Ilion.....	Pr-1915
Brining.....	1911-O	Ruskin.....	P-1915	Little Valley.....	1896-S
Burr.....	P-1917	Salem.....	Pr-1915-G	Macedon.....	P-1924
Central City.....	1910-S	Seward.....	Pr-1904-S	Marathon.....	P-1911
Chester.....	1914-O	Shickley.....	P-1923	Mayville.....	1901-W
Clarkson.....	P-1923	Smithfield.....	P-1919	Marathon.....	P-1923
Clarkson.....	1908-S	Snyder.....	P-1920	Mohawk.....	1897-S
Cody.....	P-1923	South Sioux City.....	P-1914	Port Byron.....	P-1910
Cook.....	P-1914	Spalding.....	P-1910	Richmondville.....	1903-S
Cordova.....	P-1917	Spencer.....	Pr-1920-G	Rouses Point.....	P-1927
Cotesfield.....	P-1926	Stanton.....	1908-G	Salamanca.....	Pr-1906-S
Crab Orchard.....	Pr-1910-G	Stapleton.....	P-1923	Savannah.....	P-1911
Crookston.....	P-1924	Sumner.....	Pr-1916-O	Sherburne.....	1907-S
Dakota City.....	P-1923	Talmage.....	P-1923	Silver Springs.....	1912-G
Danbury.....	P-1920	Tamora.....	P-1920	Skaneateles.....	Pr-1900-S
Davenport.....	P-1918	Thurston.....	P-1920	Solvay.....	P-1911
Dix.....	P-1923	Trumbull.....	P-1919	Spencerport.....	P-1916
Dorchester.....	P-1912	Virginia.....	1910-O	Tupper Lake.....	1903-S
Douglas.....	P-1923	Walshill.....	P-1926	Westfield.....	1892-S
Duncan.....	P-1923	Weston.....	P-1923		P-1924
Eddyville.....	P-1924	Wilcox.....	1917-G	<i>North Carolina</i>	
Edgar.....	Pr-1909-S	Wilsonville.....	P-1923	Albemarle.....	P-1911
Elk Creek.....	P-1917	Wolbach.....	1914-O	Apex.....	1912-S, S. T.
Endicott.....	P-1920	Wood River.....	P-1924	Ayden.....	P-1908
Fairmont.....	Pr-1919-S	Wymore.....	P-1916	Cherryville.....	P-1913
Filley.....	P-1924		P-1920	Clayton.....	P-1913
Firth.....	1918-O	<i>Nevada</i>		Concord.....	Pr-1904-S
Friend.....	P-1923	Fallon.....	P-1913	Cornelius.....	P-1908
Funk.....	P-1915	Mineral County		Crouse.....	P-1931
Gering.....	P-1926	(Hawthorne).....	P-1921	Dallas.....	P-1925
Gilead.....	P-1927	Truckee-Carson Irriga-		Davidson.....	P-1923
Giltner.....	Pr-1913-S	tion District**.....	P-1928	Drexel.....	1907-S
Glenville.....	P-1920	<i>New Hampshire</i>		Edenton.....	P-1927
Greenwood.....	P-1917	Ashland.....	Pr-1917-S, W	Elizabeth City.....	Pr-1925-S
Hampton.....	P-1919	Littleton.....	P-1924	Elm City.....	1900-S
Hazard.....	1904-S		Pr-1903-S, W	Fayetteville.....	P-1921
Hebron.....	P-1915	New Hampton.....	P-1927	Fountain.....	Pr-1903-S
Henry.....	P-1924	New Ipswich.....	P-1924	Fremont.....	P-1900
Hildreth.....	Pr-1900-S	Rindge.....	P-1923	Gastonia.....	1900-S
Holstein.....	P-1923	<i>New Jersey</i>		Granite Falls.....	P-1908
Howell.....	1905-S	Franklin.....	P-1913	Hertford.....	Pr-1916-S
Hubbell.....	P-1923	Lavallette.....	P-1923	High Point.....	P-1927
Indianola.....	P-1919	Madison.....	1889-S	Hookertown.....	1893-S
Kilgore.....	P-1923	Milltown.....	P-1924	Huntersville.....	P-1904
Lebanon.....	P-1923	Ogdensburg.....	P-1904		P-1919-G
Lewiston.....	P-1924	Park Ridge.....	1904-W		P-1926
Litchfield.....	1917-G	Seaside Heights.....	P-1919		P-1917
Loomis.....	P-1926	<i>New Mexico</i>			
Lyman.....	P-1924	(None)			
Malmo.....	Pr-1910-G	<i>New York</i>			
Maxwell.....	P-1924	Akron.....	1903-G		
Milford.....	1915-O	Andover.....	P-1919		
	P-1923	Angelica.....	P-1920		
	P-1911		P-1923		





## MUNICIPALLY OWNED PURCHASING ESTABLISHMENTS

415

Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin	Town	Date of Origin and Status at Date of Origin
<i>South Dakota—Cont'd.</i>					
Hayti.....	P-1921	Washington.....	Pr.-1908-S	Wisconsin—Cont'd.	
Jefferson.....	P-1917	Blaine.....	P-1913	Masomanie.....	1894-S
Langford.....	P-1923	Cashmere.....	P-1910	Middleton.....	P-1916
Spencer <sup>11</sup> .....	P-1922	Cheney.....	P-1931	Monticello.....	P-1914
Volga.....	P-1922	Chewelah.....	P-1908-W		1904-S
Wakonda.....	Pr. 1922-O	Eatonville.....	P-1916	New Glarus.....	P-1921
	P-1928	Pacific City.....	P-1913		1903-S
		Port Angeles.....	Pr.-1896-S	New Holstein.....	P-1926
<i>Tennessee</i>					1913-O
Lebanon.....	Pr.-1896-S	Stellacom.....	P-1913	New London.....	P-1923
	P-1921	Sumas.....	P-1914		Pr.-1904-S
Springfield.....	Pr.-1904-S	Waterville.....	P-1910	New Richmond.....	P-1923
	P-1924		1894-S	Oliver.....	P-1899
Tullahoma.....	Pr.-1902-S		P-1906	Oconomowoc.....	P-1924
	P-1915				Pr.-1899-S
<i>Texas</i>		<i>West Virginia</i>			
(None)		Durbin.....	P-1925	Oconto Falls.....	P-1926
					1907-S
<i>Utah</i>		<i>Wisconsin</i>			
Fillmore.....	P-1918	Algona.....	1904-S	Plain.....	P-1916
Heber.....	1909-W		P-1926	Plymouth.....	P-1923
	P-1925	Belmont.....	1907-S		1901-S
Helper.....	1912-W	Benton.....	P-1919	Potosi.....	P-1925
	P-1917		1902-S	Prairie du Sac.....	P-1923
Holden.....	P-1921	Black Earth.....	P-1909	Princeton.....	Pr.-1901-S, W
Kanosh.....	P-1926	Bloomer.....	P-1915		P-1922
Kaysville.....	P-1909	Boocobell.....	P-1919	Reedsburg.....	1891-S
Levan.....	P-1920		1899-S	Rice Lake.....	P-1921
Manitou.....	P-1916	Cadott.....	P-1916	Sauk City.....	P-1920
Meadow.....	P-1926	Cassville.....	Pr.-1907-S		1903-S
Oak City.....	P-1925		P-1926	Shawano.....	P-1916
Paragonah.....	P-1915	Clintonville.....	1902-S		1900-S
Payson City.....	Pr.-1897-W	Colby.....	P-1920	Sheboygan Falls.....	P-1926
	P-1921		1903-S	Slinger.....	P-1917
Perry.....	P-1922	Columbus.....	1899-S	Stratford.....	P-1914
Price.....	1910-S		P-1921	Sturgeon Bay.....	P-1925
	P-1916	Commonwealth.....	P-1914		1904-S
Salem.....	P-1912	Cornell.....	P-1915	Sun Prairie.....	Pr.-1910-S
Spanish Fork.....	P-1910	Cuba City.....	1907-S		P-1921
Wales.....	P-1921		P-1911	Trempealeau.....	P-1915
		Cumberland.....	Pr.-1898-S	Two Rivers.....	1892-S
<i>Vermont</i>			P-1919		P-1918
Jacksonville.....	P-1922	Deerfield.....	1915-I	Waunakee.....	P-1915
Ludlow.....	1901-S, W		P-1921	Waupun.....	1900-S
	P-1917	Eagle River.....	Pr.-1915-W		1902-S
Northfield.....	1896-S, W		P-1929	Westby.....	P-1925
	P-1907	Elkhorn.....	1907-S		P-1915
Orleans.....	P-1921		P-1918	Wisconsin Rapids.....	P-1915
Readsboro.....	P-1915	Evansville.....	Pr.-1902-S	Wonewoc.....	1901-S
Stowe.....	P-1896		P-1926		P-1919
West Burke.....	P-1915	Fennimore.....	1904-S	Woodman.....	P-1923
			P-1916		
<i>Virginia</i>		Florence.....	Pr.-1898-S	<i>Wyoming</i>	
Franklin.....	1903-S	Footville.....	P-1918	Baggs.....	P-1915
	P-1927	Hazel Green.....	P-1920	Cody.....	P-
Front Royal.....	1892-S		1901-S	Deaver.....	P-1924
	P-	Jefferson.....	P-1911	Gillette.....	1915-S
Irongate.....	P-1912		Pr.-1901-S		P-
Radford <sup>14</sup> .....	Pr.-1922-W	Juneau.....	P-1923	Guernsey.....	1920-G, O
	P-1928	Kiel.....	Pr.-1913-G		P-1928
Richlands.....	Pr.-1921-S		P-1922	Lingle.....	P-1920
	P-1925	Kilbourn (Wisconsin)		Powell.....	P-1922
Salem.....	1892-S	Dells.....	1904-S	Ranchester.....	P-1912
	P-1910		P-1910	South Superior.....	1902-G
Tangier.....	P-1931	Lodi.....	1907-S		P-1914
Wakefield.....	P-1931		P-1917	Torrington.....	1912-O
					P-1920

## Footnotes

- <sup>1</sup> Information conflicting as to Williams.
- <sup>2</sup> Truckee Public Utility District serves the unincorporated town of Truckee; Carson City, Nevada is also apparently included in this district.
- <sup>3</sup> Leesburg also serves Fruitland Park.
- <sup>4</sup> Pierceton changed to private ownership in 1920; originated again as a municipally owned purchasing establishment in 1932.
- <sup>5</sup> Afton's plant was leased between 1897 and 1903 to a private individual.
- <sup>6</sup> Montezuma originated in 1920 as a purchasing establishment; changed to private ownership in 1927; resumed municipal ownership in 1935 as a generating plant and is now said to be purchasing all of output.
- <sup>7</sup> Buffalo had a generating plant from 1910 to 1915 and resumed purchasing in 1915.
- <sup>8</sup> See note 1a above.
- <sup>9</sup> Burdett has leased its plant to a private company since 1921.
- <sup>10</sup> Laurinburg had some sort of municipal service before it began purchasing in 1915.
- <sup>11</sup> Waynesville had some sort of municipal service before it began purchasing in 1903.
- <sup>12</sup> Mifflinburg was generating part and purchasing part of its output between 1919 and 1921 but began purchasing all in 1922.
- <sup>13</sup> Union also serves Buffalo.
- <sup>14</sup> Badger purchases for street lighting only.
- <sup>15</sup> Spencer has leased its establishment to a private company since 1923.
- <sup>16</sup> Radford was generating part and purchasing part of its output between 1922 and 1928.

## Editorial Note

The list of municipally owned purchasing establishments in the United States which appears here was compiled originally from the materials collected and analyzed over a period of years by the Institute for Economic Research in connection with their studies of municipal ownership in the electric light and power industry in the United States. For purposes of present publication, however, this list has been further checked by comparison with a similar list independently compiled by Edna C. Macmahon of Columbia University and appearing in her monograph, "Municipal Electric Plant Managers," published by Public Administration Service, Chicago, Illinois. As a result of this cooperation and of the attempt carefully to reconcile the discrepancies, the list here presented should be as nearly accurate as it is ever possible to make such a list. Not all discrepancies, of course, will be removed but those which remain will be attributable largely to differences in sources of information and the difference in the publication dates of the two lists.

## Additional Data on the List of Generating Plants

In the process of checking these two lists and of preparing the accompanying one for publication, some additional information has come to hand with regard to certain of the generating plants listed in the August issue of the *Journal*. Some of these new data are in the nature of additions to that list, and others constitute certain changes in the list as published. Since this new information is of a later date (October, 1933), it may represent changes which have taken place since December 31, 1932 and, where such is definitely known to be the case, it has been so indicated. Having this current material at hand, we are making it available to our readers through the accompanying lists which will supplement the data on generating plants already published.

## I

The following instances should be added to the list of municipally owned generating plants as published in the August *Journal*:

- Arkansas:** Piggott—generating all output (information conflicting).  
**Connecticut:** East Norwalk—generating part and purchasing part. (This is the Third Taxing District of Norwalk; and South Norwalk in the original list constitutes the Second Taxing District of Norwalk.)  
**Delaware:** Clayton—began as a purchasing establishment in 1932 and is now generating part and purchasing part of output.  
**Indiana:** Goshen—originated in 1889, using a steam engine, began to purchase all its output in 1927, and is now generating all its output.  
**Iowa:** Ellsworth—generating for street lighting only with an oil engine; Grand Junction—generating all since 1933 and the community is also served by a private company.  
**Kansas:** Glasco—data incomplete; Hill City—generating all.  
**Louisiana:** Morgan City—began as a purchasing establishment in 1931 and is now generating all.  
**Michigan:** Allegan—generating all; Detour—generating all.  
**Minnesota:** Delano—originated in 1903 as a steam plant, began to purchase all of output in 1915, and has again reverted to generating all output; Hawley—began with a gas engine generating plant in 1908, changed to purchasing all output in 1922, and is again generating all output; Kenyon—generating all since 1931 (700 h. p. Diesel engine); La Seuer—generating all; Moose Lake—generating all since 1931 (350 h. p. Diesel engine).  
**Nebraska:** Sutherland—originated as a generating establishment in 1917 with an oil engine, changed to purchasing all output in 1924, and is now generating all.  
**North Carolina:** Aurora—generating part and purchasing part.  
**Oklahoma:** Walters—changed from private to municipal ownership in 1910 using a steam engine; in 1924 it began purchasing all its output, and has now reverted to generating all.  
**Oregon:** Milton—began as a purchasing establishment in 1891 and changed to generating all in 1905, using hydro and oil engines.  
**Pennsylvania:** Hatfield—began as a purchasing establishment in 1908 but has changed (probably about 1930) to generating all.  
**South Dakota:** Burke—began in 1908 as a generating plant with an oil engine, changed to purchasing all output in 1929, and is again generating all output; Harrisburg—originated as a purchasing establishment in 1920 but has now (probably about 1930) changed to generating all its output; Valley Springs—began in 1917 as a generating plant with an oil engine, changed to purchasing all output in 1920, and is again generating all output; Worthing—originated as a purchasing establishment in 1920 but has now (probably about 1930) changed to generating all its output.

*Utah:* Charleston—originated as a purchasing establishment in 1931 and now generates for street lighting only.

*Wisconsin:* Cashton—changed from private to municipal ownership in 1909 and used a steam engine, in 1924 it began to purchase all its output, but in 1933 started to generate again with an oil engine;

Kewaunee—started as a generating plant with a steam engine in 1908 and began to purchase all its output in 1923 but has been generating all output again since 1931, using an oil engine; New Lisbon—originated as a generating plant with a gas engine in 1912 and started to purchase all output in 1921, but has been generating all output again since 1931, using an oil engine.

## II

The following instances should be removed from the list of municipally owned generating plants as published in the August *Journal*:

*Arizona:* Tombstone—information conflicting.

*Colorado:* Peetz—changed to private ownership; Arriba—changed to private ownership in 1933 (not on original list).

*Florida:* Quincy—changed to private ownership in 1933.

*Georgia:* Adel—purchasing all output.

*Illinois:* Walshville—changed to private ownership in 1930.

*Kansas:* Montezuma—purchasing all output (information conflicting).

*Massachusetts:* Boston.

*Michigan:* Grand Marais; Negaunee—purchasing all output; Newberry—purchasing all output; St. Joseph.

*Minnesota:* Fosston—changed to private ownership; Goodrich; Granite Falls—purchasing all output; Lake City—purchasing all output; Leonard; Section Thirty; St. Vincent.

*Missouri:* Hayti; Liberal.

*New York:* Arcade—changed to private ownership in 1933.

*North Carolina:* Pine Tops—purchasing all output.

*Oklahoma:* Edmond—purchasing all output.

*South Carolina:* Abbeville—purchasing all output; Bennettsville—purchasing all output.

*Virginia:* Front Royal—purchasing all output.

*Wyoming:* Gillette—purchasing all output.

## III

In the following instances subsequent information has indicated a somewhat different technical character of the generating plants than stated on the original list as it appeared in the August *Journal*:

*California:* Pasadena—generating all output.

*Colorado:* Longmont—generating all output.

*Illinois:* Newton—generating all output; Sullivan—generating all output.

*Indiana:* New Castle—does not generate exclusively for street lighting; Peru—generating all output.

*Iowa:* Alta—generating all output; Fort Dodge—generates for street lighting only; Independence—generating all output; Strawberry Point—generating all output; Stuart—generating all output with an oil engine; Tipton and West Liberty have generating plants for stand-by service only.

*Kansas:* Burlingame—generating all output; Sterling—generating all output; Wamego—generating all output.

*Kentucky:* Corbin—generating all output.

*Maryland:* Hagerstown—generating all output.

*Massachusetts:* Braintree—generating all output; Hudson—generating all output; Taunton—generating all output.

*Michigan:* Crystal Falls—generating part and purchasing part; L'Anse—generating part and purchasing part; Marquette—generating part and purchasing part; Paw Paw—generating part and purchasing part; Wyandotte—generating part and purchasing part.

*Minnesota:* Alexandria—generating all output; Hibbing—generating all output; Tyler—generating all output.

*Missouri:* Monroe City—generating all output.

*Nebraska:* West Point—generating all output.

*North Carolina:* Benson—generating all output; Tarboro—generating all output.

*Ohio:* Bryan—generating all output; Hamilton—generating all output; Martin's Ferry—generating all output; Nelsonville—generating all output; Troy—generating all output; Waterville—generating all; Wellston—generating all output.

*Oklahoma:* Pawhuska—generating all output.

*Oregon:* Eugene—generating all output.

*Pennsylvania:* Schuylkill Haven—generating all output; Sharpsburg—generating all output.

*Utah:* Logan—generating all output.

*Vermont:* Morrisville—generating all output.

*Washington:* Tacoma—generating all output.

*Wisconsin:* Lake Mills—changed from municipal to private ownership in 1911 with a steam engine plant and later began to purchase all output but has been generating all its output again since 1931 with an oil engine.

*Wyoming:* Dixon—leased its plant to a private company.

## Book Reviews

Moulton, Harold G. and Associates. **THE AMERICAN TRANSPORTATION PROBLEM.** Washington, D. C.: *The Brookings Institution*, 1933. pp. lxix, 915. \$3.

The author has secured the assistance of 14 specialists and members of the staff of the Brookings Institution, and with their aid has rapidly put together a large amount of information gathered for the National Transportation Committee of 1933. The resulting treatise is uneven, but some parts of it are very good indeed. There are six chapters on highway transportation, three chapters on terminal problems, three chapters on water transportation, three chapters on valuation, four chapters on railway finance, and individual chapters on oil pipe lines, air transport, railroad abandonments, railroad wages, the recapture clause of the Transportation Act, and other matters of current interest. There is no historical material, no reference to European experience, and no attempt to describe the organization and functioning of the present system of state and federal control; but these omissions are explained by the limitations under which the work of the National Transportation Committee was carried on.

Among the parts of the book which are least satisfactory are the chapters on rates, consolidation, and valuation. On the other hand, the treatment of highways, motor vehicles, air transport, and obsolescence in rail transportation is excellent. The general trend of the discussion is opposed to government support of any particular transportation agency. It is suggested, for instance, that Congress should prohibit the payment of more than half a cent per pound-mile for transporting mail over any air mail route, and that eventually a share of the cost of airways should be allocated to the companies using them. This would certainly eliminate air service on routes of light traffic density; but the authors believe that such curtailment would be in the public interest. It is also argued that the cost of highway development provided because of highway-user demand for improved facilities should be met from payments by motor vehicle users. In speaking of present practice the belief is expressed that, on the whole, highway users are now paying for highways which

are of general use. A note explains that in reaching this conclusion no account is taken of those portions of city streets which form integral parts of state highway system routes. The reviewer has recently examined a survey conducted in Illinois by the United States Bureau of Public Roads which shows that, in 1930, out of \$166,298,900 expended on all highways in Illinois, \$100,100,200, or nearly  $\frac{3}{4}$  of all highway outlays for the year, were local expenditures on city streets. Motor vehicles used these city thoroughfares, whether or not the streets were integral parts of the state highway system, and the principles which Moulton's book lays down would require that a fair proportion of the cost of their maintenance should be charged to motor vehicle owners. If this were done the conclusion that highway users are now paying for highways which are of general use might, at least for Illinois, have to be revised.

Finally, in line with the foregoing, the book vigorously opposes the grant of subsidies to inland waterways. Moulton's position with respect to the cost of inland waterway transportation is well known, and this most recent exposition adds little that is new. Any piece of work that is worth while will provoke argument, and the present volume is no exception to the rule. Considered as a whole, it is the most informing contribution to the discussion of American transport that has appeared for several years. The book is recommended to students, and, in addition, to such legislators as may find time to read 900 well filled pages before they act regarding matters which the work describes.

STUART DAGGETT

Morgan, O. S., editor. **AGRICULTURAL SYSTEMS OF MIDDLE EUROPE: A SYMPOSIUM.** New York: *Macmillan Co.*, 1933. pp. xix, 406. \$5.

This is a symposium edited by Professor O. S. Morgan of Columbia University. Professor Morgan is an internationalist. He believes that the welfare of agriculture in one country is dependent in no small measure upon conditions of agriculture in other nations. From this hypothesis it logically follows that the progress of the industry is promoted by a widespread understanding of



the problems confronting farmers in all regions. This book is a step in that direction. Professor Morgan's extended experience abroad with the Near East Relief movement has made him exceptionally well qualified to undertake the task of enlisting contributions from agricultural economic authorities in the countries treated—Austria, Bulgaria, Czechoslovakia, Greece, Hungary, Poland, Roumania, and Yugoslavia.

Each of these contributors was furnished with an outline containing suggested topics to be covered. This method produced commendable uniformity, but at the same time imparted an encyclopedic tone to the contents. This latter, however, does not detract from the usefulness of the volume since it is obviously designed as a work of reference.

The treatise is remarkably free from nationalistic propaganda. It is true that the chapter on Hungary measures that country's miseries by pre-war standards. Residual Hungary is continually being compared with before-the-war Hungary. The ills of the nation are laid at the door of the "so-called peace treaty of Trianon." But the author's contentions seem justified by the facts submitted.

The reader will find statistics in healthy detail with respect to each country, covering such aspects as occupational division of population, land area, and the uses of the land. The information available on such topics as farmers' incomes, the activities of cooperative associations, and agricultural education is not so uniformly complete.

The discussion of land reforms occupies a prominent place. In practically all these countries, land was appropriated—generally large estates—by the government and parceled out to peasant proprietors. The effects of the movement upon the agriculture of these countries were far reaching. Agricultural students the world over are interested in the methods employed in accomplishing such extensive changes, together with their social and economic results.

American readers will be most interested, perhaps, in the portions devoted to international action as an approach to the solution of the world's agricultural crisis. Most of these countries are relatively small. The general adoption among nations of high tariff and trade barrier policies tends to restrict commercial activities within borders

entirely too confined for the maintenance of a healthy state of self-sufficiency. Hence these nations, beginning with the Warsaw Conference of August, 1930, have been demanding international action which would grant them preference in western European markets for their agricultural staples. In order to do this they have advanced the proposal that the most-favored-nation principle not be enforced with respect to these products. Hence it is not surprising that Briand's United States of Europe proposal has many supporters in Middle Europe.

Professor Morgan has given us a substantially worth while volume in the field of international agricultural relations.

ASHER HOBSON

Prendergast, William A. PUBLIC UTILITIES AND THE PEOPLE. New York: D. Appleton-Century Co., 1933. pp. vii, 379. \$3.

As its title suggests, this volume, written by a former chairman of the Public Service Commission of New York, is devoted almost exclusively to the problems of public regulation and ownership. Of the 21 chapters, two are introductory in character, three relate to the holding company, four to valuation, four to rates, two to the "effectiveness" of regulation, three to public ownership, and one chapter each to the "power trust," the rate of return, and accounting.

With respect to the holding company the author's position is that in no state does the public service commission have the authority necessary to deal with the problems presented by this form of organization. The holding company issue he believes to be "the most genuine, most acute," connected with the power industry. Both the geographic extent of holding companies and the presence of interstate transmission (the latter is said to present a very minor regulatory problem) lead to the recommendation that a federal commission be given appropriate authority to regulate the interstate phases of the situation.

"Prudent investment" is considered inferior to "present value" as a base for rate control. The former, according to Mr. Prendergast, has been advocated on the false assumption that dollar stability and real stability are identical. On the contrary, real stability necessitates the use of purchasing power rather than dollars; consequently, the

author advocates that initial valuations be made and kept up to date by the use of index numbers of public utility costs. To the argument that, as the result of large fixed debt issues, reproduction cost benefits common stockholders unduly during periods of rising prices while bondholders are restricted to a fixed dollar return, Mr. Prendergast replies that common stockholders lose correspondingly when price trends are reversed. As to bondholders, these investors have entered a situation "of their own choosing"! "They wanted a guarantee of dollars, not of purchasing power." (p. 114). It is not explained why uncertainties resulting from cyclical price fluctuations (taken account of in a shifting rate-base) should be added to the rise and decline in earnings and dividends occasioned by the cyclical fluctuations of business. In practice, commissions may find it difficult and inexpedient in a period of falling prices to revise downward the stockholders' equity in the rate-base because of the resultant peril to the credit position of a company and its ability to secure new capital. The result is that a flexible reproduction cost rate-base is likely to mean a "heads I win, tails you lose" situation favorable to the common stockholder. In view of the author's position that the ability to secure new capital is the best test of the adequacy of a given rate of return, it is somewhat surprising that he should believe a fluctuating rate-base necessary to the fair treatment of the common stock. A manipulation of the rate of return is surely a much more practicable method of securing any desired flexibility in dividends on stock than is the introduction of a second variable into the situation.

The fundamental test of the rightness of rate structures is held to be: "With provision for a fair return to the companies, do the rates encourage greater use?" (p. 198). His belief in the importance of developmental rates leads the author to take a strong position in favor of a clear separation of customer and service costs from energy costs in rate construction. One is disappointed, however, to find little enlightenment on the problems of cost allocation which are basic to judging the fairness of domestic vs. power rates. The common assumption that power rates, which yield something more than immediate out-of-pocket costs (despite the fact that in the long run such sales may force an expansion of total plant

capacity), are profitable and hence tend to lower domestic rates, receives no critical examination. There is likewise no analysis of the frequent charge that domestic demand in many cases has become off peak and hence entitled to a lower rate.

The discussion of public ownership is perhaps the least helpful portion of the book; but such a criticism unfortunately is true of many volumes besides this one.

The quality of *Public Utilities and the People* is quite uneven. To the reviewer it seems that the author's analysis is frequently weakened by an undue reverence for the opinions of courts. While in some respects the views presented seem ultra conservative, the position taken toward holding companies and certain other matters makes it inappropriate to apply this appellation to the entire study.

JOHN D. SUMNER

Pack, Arthur Newton. *FORESTRY: AN ECONOMIC CHALLENGE*. New York: Macmillan Co., 1933. pp. 161. \$1.25.

This book is described by the author as a re-thinking of forestry. It is an attempt to bring together in one place an appraisal of all the more recent developments in forestry of an economic nature. As a conclusion it advocates the preparation of a national land-use plan with the forest economist playing a leading part in its execution.

The economic problems of forestry are presented in a convincing manner. The first half of the book is by far the more interesting; later it becomes obvious that the author is somewhat prejudiced against the work of the United States Forest Service and the text becomes so involved in controversy that readers may lose interest. On the whole, the volume will provide interesting reading for the layman, especially if he is one who has been a little critical of foresters and their work. The lay reader of this volume will get the impression that the author is imbued with a desire to do something to advance the cause of forestry.

On the other hand, professional foresters cannot be expected to take kindly to the author's conclusions as expressed on page 114, to the effect that foresters come from a lower class of intelligence than most of the reputable professions. It seems very doubtful whether the evidence supports the sweeping conclusions expressed in this connection. At any rate, it does not appear

that the discussion of the general intelligence of the professional foresters is especially helpful to a re-thinking of forestry or as a stimulus to economic thought among foresters.

The speculative foundation of the lumber industry is presented in Chapters II and IV. It is pointed out that the "vanishing forests" idea, justified or unjustified, was responsible for the speculative rise in the price of standing timber until 1926. Now the profits of the business must come from the growing and harvesting and marketing of timber. "The world of wood moves forward out of its easy-going areas of waste and into an era where competition and changing conditions demand efficiency, intelligence, or—extinction."

That part of Chapter III having to do with forest influences is very well written. The many roles of the forest are summarized for the layman in an interesting and forward-looking fashion:

"So what we have, then, under the great domain which, generically, we class as forests, is a multitudinous affair of variegated uses and values, demanding, for its highest development as a servant to man, equally variegated husbandry. After all, forestry, since it deals with the day after tomorrow, does involve a certain need for prophecy and, above all things, it demands a belief in the future. If one purpose for which forests are developed fails to be of great importance in the economic scheme, it need not follow that the care of the forests also ceases to be of importance. It only follows that some particular kind of care must change, and that some particular kind of forest must from now on be administered with an eye to a new use, to whatever use may make it of value. . . ."

The author mentions "a certain forward look, a certain eagerness to change with changing conditions, a certain adaptability—opportunism" as necessary qualities for forest leadership.

The author has quite incorrectly reported the opinions and conclusions of the Forest Taxation Inquiry of the Federal Forest Service. It seems probable that material in a progress report issued in April, 1928 has been misconstrued by the author as the conclusions of the Inquiry. The contents of this earlier report, which is summarized on pages 74 and 75 of Mr. Pack's book, represented

the most advanced thought on forest taxation six years prior to the publication in May, 1933 of a portion of the conclusions and recommendations of the Forest Taxation Inquiry. The balance of these conclusions is not yet published. However, neither the yield tax nor a tax on the value of the forest exclusive of the growing trees is recommended by the Inquiry.

With reference to the abandonment of the general property tax is found the statement: "For it other nations have substituted systems which recognize that forest taxes are fairly and dependably collectible only when there are earnings with which they can be paid." This is a popular misconception which has been disseminated by those connected with the lumber industry. The facts are that the forest taxes of the important forest-growing countries of Europe, which some have named "yield taxes", are based upon the average yield capacity of the forest; nevertheless, they are payable each year regardless of and without relation to the current yield actually received. A small severance tax in Sweden is in addition to rather than a substitute for the property tax.

While this book does bring together some of the latest developments in forest economics and presents them in an easily readable fashion, it cannot be regarded as an authoritative work. Its tendency to be controversial on topics not directly pertinent to the burden of the argument, as well as the number of inaccuracies of statement, will detract from any influence the book may have in accomplishing its declared purpose, to stimulate economic thought among foresters.

WADE DE VRIES

Kendrick, M. Slade. *TAXATION ISSUES*. New York: Harper & Brothers, 1933. pp. xii, 147. \$1.

Interest in matters of taxation is always much greater during a depression than when business is expanding and prosperous. The appearance of Professor Kendrick's 147-page volume dealing with "Tax Issues" is timely and it will receive more consideration than it would if business conditions were more favorable. This small book is divided into six chapters dealing in order with: The Rising Tide of Taxation, The Quest for Revenue, The General Property Tax, The Relations between State and Local Taxation, The Shifting of Taxes, and The Problem of a System of Taxation.

In the first chapter the author presents a series of tables showing the growth in tax bills in recent years. After giving the chief causes for mounting public expenses and referring to the lull occasioned here and there because of economic conditions, the prediction is made that "the evidence of past governmental expenditures, federal, state, and local, points strongly to a rising trend of taxation in the future." In this observation he is probably correct. In his treatment of the "Quest for Revenue" and "The General Property Tax" there is little that is new. Attention is called to the great significance of the general property tax in American tax programs. Of the combined state and local revenues approximately 80% is secured from this source and of the total tax bill of the country approximately 50% rests on property.

The shortcomings of the general property tax as well as methods of reform, familiar to all students of taxation, are recounted. With respect to improvement, the recommendation is made that the basis for the assessment of real estate be changed from capital value to net rental value. That there is merit in this proposal cannot be denied. Such a method, rigidly adhered to, would, however, free from taxation vacant lots, growing forests, and other such types of realty. True, the author contends that this objection can "easily be remedied by introducing a steep transfer tax on the profits realized from the sale of land on which no annual taxes have been paid." Such a remedy, however, can hardly be effective in those cases where no transfers are made for very long periods.

In discussing the relation between state and local taxation the author inclines to look with favor upon extending the practice of assumption of a portion of local expenditures by states through either grants-in-aid or shared revenues, insisting, quite properly, that the former method should be confined to payments for the maintenance of functions essential to the general welfare. The very fact, that, for economic reasons, a wider range of sources of revenue is available to the state supports the position favoring aid for local governments. Though the plan of granting state aid in the form of shared revenues is not generally used, Professor Kendrick gives a concise analysis of the more important problems involved. He points out that this system has possi-

ties and is at the present time of considerable importance in New York, Connecticut, Massachusetts, New Hampshire, New Jersey, and Wisconsin.

The fifth chapter is devoted to a brief though scholarly consideration of the shifting and incidence of taxes. Analyses in turn are made with respect to levies upon real estate, tangible and intangible personalty, incomes, inheritances and estates, and commodities. As may be expected, the observations lead to the conclusion that some taxes remain where first placed, while others are shifted. But the author points out that "the matter of shifting with its various considerations of supply and demand and its possibilities of introducing incidence effects into fields remote from the one taxed is still further complicated by the fact that in some instances it is affected by the expenditure of tax funds."

The sixth and final chapter is concerned with the problem of a system of taxation. As more and more of the national income is absorbed for governmental purposes, the problem of relations in a tax system becomes more significant. In solving this problem Professor Kendrick observes that consideration must be given to levies "for discrimination as well as for revenue." As for the revenue division of a properly constituted tax system, the thesis is advanced that "whenever the benefits arising from a particular governmental expenditure can be allocated to a particular source, that tax source should pay for this expenditure." This thesis, the author maintains, differs from the benefit theory in that the allocation is to be made to "economic groups" and not to individuals. Moreover, this approach, unlike the benefit theory, "makes possible the use of the principle of ability to pay." We are inclined to the belief that the author underestimates the difficulties involved in allocating many governmental expenditures to specific tax sources. In framing the other division of a tax system composed of levies for purposes, in part, other than revenue, no general rule can be laid down regarding the rates to be applied. Regarding such taxes the author observes that but three questions need to be asked: Is the end of discrimination justified? Is taxation the proper means? Will the proposed rate accomplish the desired result?

No very thorough analysis of the multitude of tax problems in the modern state



can be crowded into a work of this size. The treatment is necessarily concise, though very readable, and every page reflects the com-

petence of the author. This little book should appeal to the general reader as well as to the student.

MARION K. MCKAY

## Book Notices

Duncan, Julian Smith. *PUBLIC AND PRIVATE OPERATION OF RAILWAYS IN BRAZIL*. New York: Columbia University Press, 1932. pp. 243. \$3.75.

This study represents an effort to discover whether federal, state, or private operation of railways in Brazil gives the best results from the standpoint of general economic welfare. It is a case study in public versus private operation of railways which is complicated by the changing status of control from private to federal and from federal to state operation, and by the effects of a fluctuating unit of currency, the milreis, which has injured both public and private credit and buying power.

The story of railway development in Brazil offers a close parallel to that of Canada; in both countries the federal government subsidized private construction in advance of traffic, guaranteed the interest on the companies' securities sold abroad, and was obliged to acquire most of the private lines when they experienced financial difficulties. Some of the Brazilian lines have remained under direct federal control; others have been leased to private operators and to state governments. War-time financial difficulties arising out of higher operating expenses and costs of capital aggravated the drift back to public control. The post-war period is characterized by an increase in state operation of lines rented from the federal government. As in Canada, the more prosperous mileage has been retained under private operation. At the end of 1930 the federal government owned 59% and operated 29% of the total mileage; state governments owned 19% and operated 23%; private companies owned 31% and operated 48%.

The study is divided into four parts: (1) the history of imperial and federal government railway policy is described, with special attention to the last two decades; (2) changes in policy and operating results of roads which have changed their type of

ownership from public to private, or vice versa, are examined; (3) a privately owned and operated railway is compared with a similar railway owned and operated by a state government, and another privately operated road with a federally operated line; (4) comparisons are made of certain phases of operation of all federal and state lines with those of lines operated by private companies.

The conclusions of the study may be summarized as follows: (1) The force of circumstances brought the federal government into the picture as owner and operator of the unprofitable lines, leaving private capital in possession of the profitable ones. (2) The most significant changes in types of operation within the past two decades have been from private to state operation. Analysis shows that standards of maintenance and operation have improved as a result. (3) The comparison of a federal line, the Central do Brazil, with the privately operated Paulista, two roads operating under similar territorial and traffic circumstances, results in a verdict in favor of the latter, largely on the grounds that too large a proportion of the annual revenues of the former goes to support an excessive payroll. (4) A comparison of all railways reveals that "excessive expenditure for personnel, with its consequent weakening of the physical plant, is probably the outstanding weakness of federal government administration." Also, while the federal government was not responsible for the defects of operation arising out of low traffic density (assuming the economic necessity of railway construction in advance of traffic), at its feet may be laid blame for failure to adjust railway rates upward in keeping with the depreciation of the milreis, the inefficient layout of the original lines, and the continued selling of transportation below out-of-pocket costs. (5) The period of state operation is too short to support conclusions with regard to the relative merits of state and private operation, but so far the comparison is not unfavorable to



the former. (6) The existence of a depreciated currency has made financial success more difficult than it otherwise would be, since rolling stock, rails, and fuel have had to be purchased abroad. The annual deficits of the federal government lines are but part of a larger problem of a balanced budget.

The author is careful to avoid any generalizations about the relative merits of private versus government operation of railways. As he states in his introduction, "The advisability or non-advisability of government ownership and operation depends on the specific conditions in each country, and probably no general rule can be given" (p. 14). His study is, nevertheless, valuable in throwing light upon the general question. After a sufficient number of studies, similar to this in scope, have been made for those countries where both private and public lines are in operation, the way may be open for broad generalizations on this important problem.

The study has interest for American readers at this time because it adds another example to a growing list of cases of countries wherein the extension of government credit to private industry has led almost inevitably to public control.

The style of the book is rather dull. Meticulous attention has been paid to documentation, and a long appendix contains detailed financial and operating statistics.

HERBERT E. DOUGALL

Taylor, Alonzo E. *CORN AND HOG SURPLUS OF THE CORN BELT*. Palo Alto, Cal.: Stanford University Press (Food Research Institute), 1932. pp. xxi, 658. \$4.50.

Those who read this 650-page book will at once be impressed with the tremendous amount of factual material the writer has assembled and the thoroughness with which the subject has been treated. Dr. Taylor covers not only the subject of corn and hogs but virtually the whole field of world production, commerce, and consumption of animal, vegetable, and marine fats and oils. Data, materials, and points of view have been drawn from many sources, but little of the factual material on the economic phase will be entirely new to those familiar with the field of agricultural economics.

The book is divided into two parts consisting of six chapters each. Part I is devoted to the "nature, extent and consequences of a surplus of corn and hogs." In these

chapters the discussion revolves around production and disposition (domestic and export) of corn and hogs, and factors determining the prices of these products. In Part II the author addresses himself to the problem of "amelioration of the consequences of a surplus of corn and hogs." Under measures of amelioration, he discusses in detail the Equalization Fee, the Export Debenture, and the Farm Allotment Plan under the rather appropriate heading, "External Methods of Farm Relief." In these measures he places little confidence. The last chapter entitled "Internal Methods of Farm Relief" is devoted to a somewhat detailed discussion of technical improvements in farm management, in production methods and practices, and in the adjustment of supply of corn and hogs to demand. An appendix of 73 pages, consisting of data and statistical analyses, furnishes supporting evidence for various parts of the text.

Dr. Taylor's training, as manifested in his previous writings, has qualified him exceptionally well to discuss the technical phases of the relative values of corn, pork and pork products, and their substitutes as a food. Throughout much of Part I (Chapters 1 to 6) a discussion of the chemistry of processing of animal, plant, and marine fats and oils is woven into the treatise. This phase of the problem is in point in bringing to the fore the present and possible future competition between the various animal, vegetable, and marine facts and oils and the effect of this competition on pork and lard consumption and prices. Throughout the discussion of the physical science phases of the subject the style of writing is free, flowing, rather delightful, and very lucid. In the social science phases the author's meaning is somewhat less explicit. For instance, while the subject of a surplus is discussed at considerable length, the definition of a surplus leaves the reader without a clear-cut understanding of what is meant by the term. On page 58 we find: "Perhaps the most useful definition of surplus is to regard as surplus outturn more of the commodity than can be sold at a profit."

This still leaves undefined what is meant by "profit." Whose profit is referred to, that of the better farmer, the average farmer, or the marginal farmer? If the latter, is it the marginal farmer on good, average, or poor lands?

On page 61 he speaks of an operative surplus: "We shall stand on safe ground, as well as on clear, if we limit ourselves to the consideration of what may be termed the operative surplus . . . Any production of the commodity in excess of the existing facilities of distribution and salesmanship represents for that season a supply beyond effective demand—an operative surplus."

Again on page 65 a somewhat different concept of a surplus is introduced: "Under these circumstances, farmers try to define the surplus largely by the prices of corn and hogs, and by the rural carry-over of corn." Also on page 66 it is indicated that corn surpluses manifest themselves not in corn but in hogs: "As we have stated, the real surplus lies not in corn itself but in the animals in which the largest fraction of the crop is marketed."

The author's position with respect to corn and hog surpluses may be epitomized by the following excerpts.

"Without question, the oils of the coconut, the palm, the soy bean, the cottonseed, and the peanut can be laid down in the United States for a cost far below that to which the most efficient husbandman can aspire." (page 20)

"From the lowest edible grease to butter is a continuous series of overlapping products; and outside of butter, it is not too much to say that with appropriate treatment every vegetable fat and oil can be used as a substitute, within limits, for every animal fat and oil." (page 23)

"We expect the use of milk fat to be increased, that of beef and sheep tallow to be heavily reduced. As between vegetable oils and lard, it strikes us that the consumption

of lard will suffer most." (page 29)

"Apparently, therefore, the surplus of corn is persisting; and within the next few years, increase in the surplus is not impossible under favorable climatic conditions." (page 72)

"Signs forecasting increase in exports of corn (from the United States) are not in evidence. The corn exports of the future will come from Argentina, South Africa, Russia, and the Danube states, except in the event of a fortuitous set of crop circumstances." (page 161)

"Relief through expansion of demand is not to be hoped for." (page 582)

Methods of amelioration are discussed in detail as they apply to corn and hogs but the author makes clear the fact that any plan is fraught with difficulties. "In short", says the author, "an examination of the export debenture on corn may be dismissed as little more than a dialectic exercise." (page 456)

Considerable faith is placed on control methods: "The common idea that generically agriculture cannot adjust production to demand and that urban industry does so effectively is a fiction. Adjustment occurs in all lines, in some more easily than in others, and the difficulties are not consistently on the side of agriculture." (page 582)

Two or three years' experience under the present Agricultural Administration Act should determine to what extent production adjustment falls in the category of *fiction* or *fact*. We shall leave this question to be answered by the course of events as directed by the so-called "brain trust."

W. P. MORTENSON

## Books Received

Comey, Arthur C. *TRANSITION ZONING*. Cambridge: Harvard University Press, 1933. pp. xiv, 150. \$2.50.

Cooke, Morris Llewellyn, editor. *WHAT ELECTRICITY COSTS*. New York: New Republic, Inc., 1933. pp. xxi, 275. \$1.

Cromwell, James H. R. *THE VOICE OF YOUNG AMERICA*. New York: Charles Scribner's Sons, 1933. pp. x, 191. \$1.

CURRENT PROBLEMS IN PUBLIC FINANCE. Chicago: Commerce Clearing House, Inc., 1933. pp. viii, 391.

Daugherty, Carroll R. *LABOR PROBLEMS IN AMERICAN INDUSTRY*. Boston: Houghton-Mifflin Co., 1933. pp. xviii, 959. \$3.50.

FARM AND VILLAGE HOUSING. Washington: President's Conference on Home Building and Home Ownership, 1932. pp. xviii, 293. \$1.15.

Greenwood, Ernest. *THE GREAT DELUSION: SOME FACTS ABOUT GOVERNMENT IN BUSINESS*. New York: Harper & Brothers, 1933. pp. xxi, 238. \$2.50.

- HOME OWNERSHIP, INCOME AND TYPES OF DWELLINGS. *Washington: President's Conference on Home Building and Home Ownership, 1932. pp. xviii, 230. \$1.15.*
- Kix Miller, William. CAN BUSINESS BUILD A GREAT AGE? *New York: Macmillan Co., 1933. pp. 320. \$2.50.*
- Magill, Roswell, editor. LECTURES ON TAXATION. *Chicago: Commerce Clearing House, Inc., 1932. pp. v., 254. \$2.50.*
- Miller, Sidney L. INLAND TRANSPORTATION. *New York: McGraw-Hill Book Co., Inc., 1933. pp. xviii, 822. \$4.*
- Mosher, William E. and Crawford, Finla G. PUBLIC UTILITY REGULATION. *New York: Harper & Brothers, 1933. pp. xvii, 612. \$5.*
- RECENT SOCIAL TRENDS IN THE UNITED STATES. Report of the President's Research Committee on Social Trends. *New York: McGraw-Hill Book Co., Inc., 1933. (2 vols.) \$10.*
- Schlesinger, Arthur Meier. THE RISE OF THE CITY, 1878-1898. *New York: Macmillan Co., 1933. pp. xvi, 494. \$4.*
- Trevous, Francois. LE DEVELOPPEMENT ET REGLEMENTATION DE L'INDUSTRIE ELECTRIQUE AUX ETATS-UNIS. *Bibliothèque de L'Institut de Droit Compare de Lyon, vol. 30, 1933.*
- Waterman, Merwin H. FINANCIAL POLICIES OF THE PUBLIC UTILITY HOLDING COMPANIES. *Ann Arbor: University of Michigan Business Studies, Vol. V, No. 1, pp. vi, 186. \$1.*
- Zimmerman, Erich W. WORLD RESOURCES AND INDUSTRIES. *New York: Harper & Brothers, 1933. pp. xix, 842.*

# Index to

## THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

### VOLUME IX

FEBRUARY, 1933—NOVEMBER, 1933

#### LEADING ARTICLES

- BRENNAN, J. F. Depreciation by the Insurance Method..... 16-24
- BUCHANAN, N. S. Service Contracts in the Electric Bond and Share Company..... 283-296
- BUEHLER, Alfred G. Current Problems of Railroad Taxation..... 75-88
- BURTON, John E. Obsolescence and the Assessor..... 109-120
- CAINE, Walter E. Uniform Rate Areas and Current Judicial Attitudes..... 182-191
- CANNON, L. G. The Wholesale Electric Business in the Depression..... 1-9
- CRANE, Jacob L., Jr. The Iowa Conservation Plan: Its Bearing upon General Land Planning..... 247-251
- DE VRIES, WADE. The Property Tax as an Obstacle to the Private Development of Idle Forest Lands..... 228-232
- DURISCH, L. L. The Organization and Personnel of the Nebraska Railway Commission..... 42-51
- FIELD, KENNETH. Use of Subsidiary Corporations in Segregating Risks..... 150-171
- GEORGE, JOHN J. Public Control of Contract Motor Carriers..... 233-246
- GLAESER, Martin G. The Los Angeles Bureau of Power and Light: A Critical Summary..... 217-227
- GOODMAN, ROBERT B. Regulation and Control of Land in Non-Urban Areas..... 266-271
- HAMMAR, CONRAD H. Some Aspects of Rural Land Tax Delinquency in Missouri..... 172-181
- HARBESON, R. W. A Method of Measuring Locomotive Maintenance and Its Use in Regulation..... 352-357
- HELLEBRANDT, EDWIN T. I. The Development of Commission Regulation of Public Utilities in Ohio..... 395-409
- HEYMAN, ELEANOR. The Value of the Service: Its Various Meanings and Uses..... 252-265
- JONES, CARRIE MAUDE. Apartment House Bonds: Some Plans for Reorganizing Defaulted Issues..... 358-367
- KELLOGG, CHARLES E. A Method for the Classification of Rural Lands for Assessment in Western North Dakota..... 10-15
- KENNY, NORRIS. The Transportation of Government Property and Troops over Land-Grant Railroads..... 368-381
- KIMBLE, ELLIS. The Tennessee Valley Project..... 325-329
- LEWIS, BEN W. Commission Regulation and Home Rule in Ohio..... 207-214
- MAVERICK, LEWIS A. Cycles in Real Estate Activity: Los Angeles County..... 52-56
- MELCHER, WILLIAM. The Economics of Federal Reclamation..... 382-394
- MONCHOW, HELEN C. Population and Subdividing Activity in the Region of Chicago: 1871-1931..... 192-206
- MOREHOUSE, E. W. Residential Electric Rates in Wisconsin: A State-Wide Picture..... 37-41
- RAVER, PAUL JEROME. Municipal Ownership in the Last Five Years..... 121-134
- RAVER, PAUL JEROME. Municipally Owned Generating Plants in the United States..... 306-313
- RAVER, PAUL JEROME. Municipally Owned Purchasing Establishments in the United States..... 410-417
- ROWLANDS, W. A. County Zoning for Agriculture, Forestry, and Recreation in Wisconsin..... 272-282
- SICKLER, BARCLAY J. Expense and Capital Ratios of Wisconsin Electric, Gas, Telephone, and Water Utilities, 1927-1931..... 57-62
- SPARHAWK, W. N. Forestry and Unemployment..... 145-149
- SPILMAN, ROBERT F. Development and Taxation of Recreational Land (GEORGE S. WEHRWEIN, co-author)..... 340-351
- STOCKING, GEORGE W. Oil Proration: An Analysis and Evaluation..... 135-144
- SWAN, HERBERT S. Some Unsolved Problems in High Building..... 25-36
- SWAN, HERBERT S. The Minor Street..... 297-305
- TYLOR, W. RUSSELL. Recent Trends in City and Country Populations..... 63-74
- WEHRWEIN, GEORGE S. Development and Taxation of Recreational Land (ROBERT F. SPILMAN, co-author)..... 340-351



## DEPARTMENT ARTICLES

- An Answer by Mr. Aldis..... 97-98  
 Do We Want Scientific Regulation?.....314-317  
 Further Discussion of the Los Angeles Gas and  
 Electric Case..... 92-95  
 In Defense of George B. Ford's *Building Height,  
 Bulk and Form*..... 95-97  
 Mr. Swidler's Reply..... 93-95  
 Regulation of Milk Marketing in Wisconsin...317-322

## BOOK REVIEWS

- BARTHOLOMEW, HARLAND. *Urban Land Uses*.....102  
 CLAY, CASSIUS M. *Regulation of Public Utilities*.....100  
 FISHER, ERNEST M. and SMITH, RAYMOND F. *Land  
 Subdividing and the Rate of Utilization*..... 99  
*Home Finance and Taxation*. Report of the Presi-  
 dent's Conference on Home Building and Home  
 Ownership.....101  
*Housing Objectives and Programs*. Report of the  
 President's Conference on Home Building and  
 Home Ownership.....216  
 KENDRICK, M. SLADE. *Taxation Issues*.....421  
 LAMBERT, C. F. *Results of Municipal Lighting  
 Plants: The Answer to the City's Financial Prob-  
 lems*.....324  
 MORGAN, O. S., editor. *Agricultural Systems of  
 Middle Europe*.....418  
 MOULTON, HAROLD G. AND ASSOCIATES. *The  
 American Transportation Problem*.....418  
 NASH, L. R. *Public Utility Rate Structures*.....323  
 PACK, ARTHUR NEWTON. *Forestry: An Economic  
 Challenge*.....420  
 PEGRUM, D. F. *Rate Theories and the California  
 Railroad Commission*.....102  
 PRENDERGAST, WILLIAM A. *Public Utilities and the  
 People*.....419  
 RUGGLES, C. O. *Problems in Public Utility Eco-  
 nomics and Management*.....215  
 SMITH, NELSON L. *The Fair Rate of Return in  
 Public Utility Regulation*.....103  
 VANCE, RUPERT B. *Human Geography of the South:  
 A Study in Regional Resources and Human  
 Adequacy*.....323  
 WRIGHT, FRANK LLOYD. *The Disappearing City*...215

## BOOK NOTICES

- EDIE, LIONEL D. *Economics: Principles and  
 Problems*.....107  
 DUNCAN, JULIAN SMITH. *Public and Private Opera-  
 tion of Railways in Brazil*.....423  
*Federal and State Tax Systems*.....105  
 JAMES, HARLEAN, editor. *American Civic Annual*...107  
*Planning for Residential Districts*. Report of the  
 President's Conference on Home Building and  
 Home Ownership.....106  
 SAKOLSKI, A. M. *The Great American Land Bubble*..106  
 TAYLOR, ALONZO E. *Corn and Hog Surplus of the  
 Corn Belt*.....424

SUBJECT MATTER

A

- Agricultural land
  - see* Assessment, classification for; County zoning; Non-urban land; Tax delinquency, rural
- "An Answer by Mr. Aldis".....97-98
- "Apartment House Bonds: Some Plans for Reorganizing Defaulted Issues," by Carrie Maude Jones.....358-367
- bondholders' committees.....360
- cash payment to bondholders.....362
- causes of default.....359
- readjustment of principal and interest.....363
- Assessment
  - classification of rural lands for
    - in North Dakota
      - general requirements for.....10
      - method for.....11
  - see also* Building obsolescence; Recreational land, development and taxation of
- Automobile taxation
  - see* Motor contract carriers; Railroad taxation

B

- "Behavior of Utility Prices, The".....89
- Bondholders' committees
  - see* Apartment house bonds
- Boulder Dam.....227, 336
- "Building Obsolescence and the Assessor,"
  - by John E. Burton.....109-120
  - causes of obsolescence.....110
  - magnitude of problem.....112
  - obsolescence and assessment.....116
  - obsolescence and depreciation distinguished.....109
  - obsolescence and taxation.....115

C

- Capital ratios
  - see* Expense and capital ratios
- Capital structure
  - see* Holding corporations
- Chicago
  - see* Subdividing activity and population
- City planning
  - see* High building; "Minor Street"
- "Commission Regulation and Home Rule in Ohio,"
  - by Ben W. Lewis.....207-214
- Competition
  - see* Los Angeles Bureau of Power and Light; Value of the service
- Conservation
  - see* Iowa Conservation Plan; Oil Proration
- Consolidations
  - see* Holding corporations
- Cook County
  - see* Apartment house bonds
- "County Zoning for Agriculture, Forestry, and Recreation in Wisconsin," by W. A. Rowlands.....272-282
- conditions prompting zoning.....272
- creating public opinion.....280
- relation to governmental costs.....281
- zoning as a method of controlling private land
  - uses.....276
- see also* Recreational land, development and taxation of
- "Current Problems of Railroad Taxation," by Alfred G. Buehler.....75-78

- "Cycles in Real Estate Activity: Los Angeles County," by Lewis A. Maverick.....52-56

D

- Depreciation
  - see* Building obsolescence; Expense and capital ratios
- "Depreciation by the Insurance Method," by J. F. Brennan.....16-24
- comparison with sinking fund method.....21
- method developed.....18
- Depression
  - see* Apartment house bonds; Utility prices, behavior of; Wholesale electric business
- "Development and Taxation of Recreational Land,"
  - by George S. Wehrwein and Robert F. Spilman.....340-351
- "Development of Commission Regulation of Public Utilities in Ohio, The," by Edwin T. Hellebrandt.....395-409
- "Do We Want Scientific Regulation?".....314-317

E

- Economic planning
  - see* Tennessee Valley project
- Electric Bond and Share Company
  - see* Service contracts in
- Electric rates
  - residential, in Wisconsin
    - comparison by population groups.....38
    - methods and assumptions.....37
  - see also* Uniform rate areas; Value of the service
- Electric utilities
  - see* Electric rates, residential, in Wisconsin; Expense and capital ratios; Los Angeles Bureau of Power and Light; Municipal ownership; Tennessee Valley project; Wholesale electric business
- Employment
  - see* Forestry and
- "Expense and Capital Ratios of Wisconsin Electric, Gas, Telephone, and Water Utilities, 1927-1931,"
  - by Barclay J. Sickler.....57-62
  - capital turnover ratios.....61
  - depreciation ratios.....59
  - operating expense ratios.....57
  - tax expense ratios.....60

F

- Farm land
  - see* Assessment, classification of rural lands for; County zoning; Tax delinquency, rural
- Flood control
  - see* Tennessee Valley project
- Forest land
  - see* County zoning; "Forestry and Employment," Non-urban land; "Property Tax as an Obstacle to Private Development of Idle Forest Land," Recreational land, development and taxation of; Tennessee Valley project
- "Forestry and Employment," by W. N. Sparhawk.....145-149
- forest utilization provides jobs.....145
- forest work and community stability.....147
- forest work and unemployment relief.....148
- "Further Discussion of the Los Angeles Gas and Electric Case".....92-95

## G

- Gas utilities  
 see "Depreciation by the Insurance Method;"  
 Expense and capital ratios  
 Government, cost of  
 see Non-urban land, regulation of

## H

- Height limits  
 see High building  
 High building  
 financial problems of.....32, 33  
 future control of.....30  
 height limits.....26  
 inner versus outer courts.....30  
 setbacks.....28  
 towers.....27  
 Holding corporations  
 and risk segregation  
 consolidation and investment account manipulations.....165  
 insulation of, from liabilities of subsidiaries.....150  
 insulation of subsidiaries from liabilities of holding companies.....152  
 insulation policies, when dominant.....154  
 intercorporate loans.....169  
 milking devices.....162  
 weaknesses of risk structures.....162  
 see also "Service Contracts in Electric Bond and Share Company"  
 Home rule, and regulation of utilities in Ohio  
 advantages of home rule.....211  
 division of jurisdiction.....208  
 effect of divided jurisdiction.....212  
 implications of divided jurisdiction.....209  
 situation at origin of home rule.....207

## I

- "In Defense of George B. Ford's *Building Height, Bulk and Form*".....95-97  
 Insurance method  
 see Depreciation  
 Integration  
 see Holding corporations  
 Interstate Commerce Commission  
 see Locomotive maintenance, measurement of  
 "Iowa Conservation Plan, The: Its Bearing upon General Land Planning," by Jacob L. Crane, Jr.....247-251  
 financial program.....251  
 land and cover surveys.....249  
 state parks, plans for.....249  
 zoning proposed.....250  
 Irrigation  
 see Reclamation, economics of federal

## L

- Land-grant railroads, government use of  
 conditions of government use.....370  
 interpretation of grants.....372  
 nature of grants.....368  
 present status of grants.....376  
 rate concessions, future of.....381  
 rate reductions, accrued and annual, amounts of 378

## Land use planning

see County zoning; Iowa conservation plan; Non-urban land, regulation of; Recreational land, development and taxation of; Tennessee Valley project

## Locomotive maintenance, measurement of

- data required.....352  
 method illustrated.....354  
 significance of.....356  
 "Los Angeles Bureau of Power and Light, The: A Critical Summary," by Martin G. Glaeser.....217-227  
 as competitive force.....225, 226  
 basis for comparing unit costs and rates.....224  
 city's contribution from taxes.....221  
 depreciation accounting.....220  
 division of the market.....226  
 problem of joint costs.....220  
 results of operation.....217  
 tax accounting.....218

## Los Angeles County

see Real estate cycles

Los Angeles Gas and Electric case.....92, 314

## M

## Mergers

see Holding corporations

"Method of Measuring Locomotive Maintenance and Its Use in Regulation, A," by R. W. Harbeson.....352-357

"Method for the Classification of Rural Lands for Assessment in Western North Dakota, A," by Charles E. Kellogg.....10-15

## Milk marketing

- application of unfair practices act.....319  
 marketing arrangements in force since 1922.....317  
 regulatory act passed.....320  
 "Minor Street, The," by Herbert S. Swan.....297-305  
 block units.....299  
 building lines and street grades.....301  
 convertibility to new uses.....303  
 cul-de-sacs.....298  
 curved streets.....297  
 rectilinear streets.....298  
 sidewalks, location of.....302  
 topographical obstacles.....301  
 width of streets.....302

## Missouri

see Tax delinquency, rural

## Mortgages

see Apartment house bonds

## Motor contract carriers

- necessity for regulation.....233  
*Stephenson v. Binford*.....241  
 unconstitutional attempts to regulate.....234  
 valid devices for regulating.....238  
 "Mr. Swidler's Reply".....93-95  
 "Municipal Ownership in the Last Five Years," by Paul Jerome Raver.....121-134  
 changes to private ownership.....124  
 distribution by states.....129  
 geographic distribution.....126  
 new establishments, number of.....122  
 technical character of plants.....131  
 see also Los Angeles Bureau of Power and Light

"Municipally Owned Generating Plants in the United States," by Paul Jerome Raver.....306-313

"Municipally Owned Purchasing Establishments in the United States," by Paul Jerome Raver.....410-417

## Muscle Shoals

see Tennessee Valley Project

N

- Nebraska Railway Commission  
   organization and personnel of  
     campaigns and elections..... 44  
     length of service..... 46  
   organization and expenditures..... 48  
   qualifications for membership..... 43  
 Non-urban land, regulation of  
   local government, costs of..... 268  
   sparse settlement, disadvantages of..... 267  
   *see also* County zoning; Recreational land, development and taxation of  
 North Dakota  
   *see* Assessment, classification for

O

- Obsolescence  
   *see* Building obsolescence  
 Ohio  
   *see* Home rule, and regulation of utilities in; Regulation, public utility, in  
 "Oil Proration: An Analysis and Evaluation," by George W. Stocking..... 135-144  
   conservation through proration..... 136  
   evaluation of proration method..... 142  
   machinery of proration..... 138  
   oil in foreign trade..... 140  
   recent developments in the industry..... 135  
   response to proration program..... 138  
 "Organization and Personnel of the Nebraska Railway Commission, The," by L. L. Durisch..... 42-51

P

- Population  
   recent trends in city and country  
     farm population..... 70  
     metropolitan districts..... 68  
     rates of increase..... 64  
     urban trends..... 65  
     village population..... 72  
   *see also* Subdividing activity and  
 "Population and Subdividing Activity in the Region of Chicago: 1871-1931," by Helen C. Monchow..... 192-206  
 Price level  
   *see* Utility prices, behavior of  
 "Property Tax as an Obstacle to the Private Development of Idle Forest Lands, The," by Wade De Vries..... 228-232  
   effect of property tax on idle forest land..... 230  
   effect of property tax on land values..... 228  
   suggested program..... 231  
 "Public Control of Contract Motor Carriers," by John J. George..... 233-246  
 Public ownership  
   *see* Municipal ownership  
 Public utilities  
   *see* Home rule, and regulation of utilities in Ohio; "Depreciation by the Insurance Method;" Electric rates, residential; Expense and capital ratios; Holding corporations; Locomotive maintenance, measurement of; Los Angeles Bureau of Power and Light; Los Angeles Gas and Electric case; Motor contract carriers; Municipal ownership; Nebraska Railway Commission; Railroad taxation; Regulation, public utility, in Ohio; "Service Contracts in Electric Bond and Share Company;" Tennessee Valley project; Uniform rate areas; Utility prices; Value of Service; Wholesale electric business

R

- Railroad taxation  
   apportionment of taxes..... 79  
   burden of..... 75  
   changing policies..... 77  
   incidence of..... 86  
   railroad and automobile taxation..... 82  
   reforms in..... 87  
   taxes on earnings..... 80  
   valuation for taxation and regulation..... 81  
 Railroads  
   *see* Land-grant railroads, government use of; Locomotive maintenance, measurement of; Railroad taxation  
 Rate-base  
   *see* Los Angeles Gas and Electric case  
 Rate of return  
   *see* Los Angeles Gas and Electric case; Value of the service  
 Rates  
   *see* Electric rates, residential, in Wisconsin; Uniform rate areas; Value of the service  
 Real estate  
   *see* Apartment house bonds; High building; Real estate cycles; Subdividing activity and population  
 Real estate cycles, in Los Angeles County  
   deeds recorded..... 54  
   historical background..... 53  
   subdividing activity..... 52  
   *see also* Subdividing activity and population  
 "Recent Trends in City and Country Populations," by W. Russell Tylor..... 63-74  
 Recreational land, development and taxation of  
   assessment, problems of..... 350  
   lake frontage, platting of..... 342  
   resort property, taxation of..... 346  
   social control of..... 344  
   tax base, relation to..... 345  
   tax delinquency of..... 345  
   *see also* County zoning  
 Reclamation, economics of federal  
   comparison with other farming..... 392  
   financial arrangements..... 385  
   proposed remedy..... 393  
   Reclamation Act, history of..... 382  
   Uncompaghe Valley project..... 387  
   weakness of system..... 392  
 Regulation  
   of public utilities in Ohio  
     analysis of dockets..... 404  
     evolution of commission..... 395  
     Ohio law, peculiarities of..... 399  
     organization of commission..... 401  
   *see also* Home rule and, in Ohio; Locomotive maintenance, measurement of; Los Angeles Gas and Electric case; Milk marketing, in Wisconsin; Motor contract carriers; Nebraska Railway Commission; Tennessee Valley project; Uniform rate areas; Value of the service  
 "Regulation and Control of Land in Non-urban Uses," by Robert B. Goodman..... 266-271  
 "Regulation of Milk Marketing in Wisconsin," 317-322  
 Reproduction cost  
   *see* Los Angeles Gas and Electric case  
 "Residential Electric Rates in Wisconsin: A State-Wide Picture," by E. W. Morehouse..... 37-41  
 Resort land  
   *see* Recreational land, development and taxation

- Risk, segregation of  
*see* Holding corporations and
- S**
- "Service Contracts in the Electric Bond and Share Company," by N. S. Buchanan.....283-296  
 current contracts, analysis of.....292  
 earnings from contracts.....289  
 profits from contracts.....290  
 service charges.....288  
 services rendered.....286
- Soil surveys  
*see* Assessment, classification of rural lands for, in North Dakota; Iowa Conservation Plan
- "Some Aspects of Rural Land Tax Delinquency in Missouri," by Conrad H. Hammar.....172-181
- "Some Unsolved Problems in High Building," by Herbert S. Swan.....25-36
- Stream railroads  
*see* Land-grant railroads, government use of;  
 Railroad taxation
- Stephenson v. Binford*.....241
- Subdividing activity  
 and population, in Chicago  
   behavior of recorded lots and population.....195  
   factors affecting population growth.....204  
   factors affecting recorded lots.....205  
*see also* Real estate cycles; Recreational land, development and taxation of
- T**
- Tax delinquency, rural  
 in Missouri  
   causes of.....176  
   extent of.....172  
   program for curbing.....178
- Taxation  
*see* Assessment; Building obsolescence; "Property Tax as an Obstacle to Private Development of Idle Forest Land;" Railroad taxation; Recreational land, development and taxation of; Tax delinquency, rural
- Telephone utilities  
*see* Expense and capital ratios
- "Tennessee Valley Project, The," by Ellis Kimble.....325-329  
 administration of.....337  
 comprehensive planning, example of.....336  
 fertilizer production.....333  
 flood control.....329  
 land planning.....335  
 legislation, history of.....325  
 navigation problem.....329  
 power, cost of production.....330  
 Tennessee basin described.....327
- Transportation Act of 1920.....88
- "Transportation of Government Property and Troops Over Land-Grant Railroads, The," by Norris Kenny.....368-381
- U**
- Uncompahgre Valley Project  
*see* Reclamation, economics of federal
- "Uniform Rate Areas and Current Judicial Attitudes," by Walter E. Caine.....182-191  
 cost allocation on basis of consumption.....189  
 interdependence of system.....183  
 rates for different classes of service.....184
- Urban land  
*see* Building obsolescence; High building; "Minor Street;" Real estate cycles; Subdividing activity and population
- "Use of Subsidiary Corporations in Segregating Risks," by Kenneth Field.....150-171
- Utility prices, behavior of.....89
- V**
- Valuation  
*see* Railroad taxation
- "Value of the Service, The: Its Various Meanings and Uses," by Eleanor Heyman.....252-265  
 concept, competitive or monopolistic.....252  
 declining patronage as measure.....253  
 rate comparisons as a measure.....257  
 uses of concept in regulation.....258
- W**
- Wabash Valley Electric Co. v. Ralph M. Young, et al.*.....182
- Water utilities  
*see* Expense and capital ratios
- "Wholesale Electric Business in the Depression, The," by L. G. Cannon.....1-9  
 adjustment to declining revenues.....3  
 cost analyses.....5  
 future trends of.....6  
 rate schedule adjustments.....5
- Wisconsin  
*see* County zoning; Electric rates, residential; Milk marketing; Recreational land, development and taxation of
- Z**
- Zoning  
*see* County zoning



88  
81  
91  
89  
83  
84  
71  
89  
65  
52  
53  
57  
58  
82  
9  
3  
5  
6  
5

# 1934

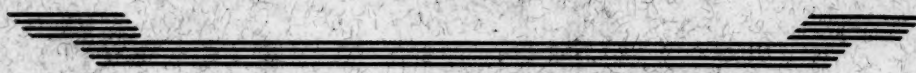
*Beginning with the February,  
1934 issue . . .*

. . . the Journal of Land & Public Utility Economics will enter upon its tenth year of service as a channel for the publication of disinterested and scientific discussions of land and public utility problems. In its nine years the Journal has established a reputation for "stimulating scientific research," contributing to the sum of facts in fields where facts are needed, and "facilitating better understanding of the crucial problems with which it deals." The Journal is now recognized as filling a unique and essential need. Plans for its future aim to promote further its stimulating and highly practical character and its contribution to informed opinion in the land and public utility fields.



*The Journal of Land & Public  
Utility Economics*

337 East Chicago Avenue  
CHICAGO, ILLINOIS



# ***Ready Now!***

**The Complete List of ALL MUNICIPALLY OWNED ELECTRIC ESTABLISHMENTS in the United States are included in**

1. The list of **Municipally Owned GENERATING Plants**, published in the August issue of the *Journal* and containing
  - the name of the town
  - the total horsepower capacity
  - the types of prime mover used
  - the date of origin
2. The list of **Municipally Owned PURCHASING Establishments**, published in the November issue of the *Journal* and containing
  - the name of the town
  - the date of origin and status at origin
  - the date of beginning to purchase all current distributed**and also** additional data on the Generating Plant list.

---

**Reprints of these lists are available at 50 cents each.**

---

## **JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS**

**337 East Chicago Avenue  
CHICAGO, ILLINOIS**

